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THE JOURNAL

OF THE

American Medical Association

Annual Subscription, $5.00 | PUBLISHED WEEKLY | Single Copies, 15 Cents

VOLUME 71, No. 6 | 535 North Dearborn Street, CHICAGO, ILL. | AUGUST 10, 1918

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized on June 14, 1918.
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The Journal of the American Medical Association

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VOL. 71, NO. 6 CHICAGO, ILLINOIS AUGUST 10, 1918

THE CASUALTIES OF WAR AND INDUSTRY AND THEIR RELATION TO ORTHOPEDIC SURGERY *

ALBERT H. FREIBERG, M.D.
Major, M. R. C., U. S. Army
CINCINNATI

With the entrance of our country into the great war, in which we are now involved, there has come a great and new emphasis on the importance of orthopedic surgery. Before our government had placed a regiment on the shores of Europe, even before it had made known its plans for raising its great army of citizen soldiers, we were made acquainted with the fact that it would demand the service of orthopedic surgeons in numbers much greater than were known to exist in the land. It is needless to say that its plans were not based on previous military experience of our country but on the results of three years' warfare among the European nations, both those with whom we are now allied and those with whom we are at present at war. The numbers of wounded have been quite unprecedented, the character of injuries and disablement which has prevailed, distressing beyond all previous human experience.

The call to activity of the orthopedic surgeon came, however, not by reason of either of these factors; it came because it has been found that in him and his peculiar training there lay hitherto unrealized possibilities for the preservation of function in the terribly shattered human frame. It became evident that the orthopedic surgeon was proving himself to be of conspicuous usefulness with his combination of superior mechanical skill and resourcefulness, together with general mastery of the technic of operative surgery. Without such combination we have, indeed, no orthopedic surgeon but merely an orthopedist. We shall not fail to remember that only a few years ago the term "orthopedist" was applied quite as freely to the man who made and sold braces as to the medical man who ordered them; that, not infrequently, mechanical appliances were fitted without professional advice. This was not always inappropriate; frequently the artisan knew more about them and their use than the physician. Many of us, in this day, do not know how large a rôle the skilled workman played in the development of orthopedic apparatus. Hessing, whose appliances have been so largely used by the Germans in times of peace, was not a graduate in medicine, but really a quack; the book published over his name shows clearly that however marvelous his mechanical aptitude, he was never an orthopedic surgeon. He was an orthopedist, however, and one such as could never be developed by the curriculum of a medical college.

There are quite a few among us in America who have a practical acquaintance with the Hessing types of apparatus as they were extensively used in Germany some years ago. We recognize that they were ingenious, exact in operation and very elegant in appearance; yet we, who are always so ready to adopt that which is mechanically attractive and purposeful, make practically no use of such appliances today. I believe that the reason for this is to be found in the fact that our professional background has become steadily more scientific and, by the measure of this, our methods more direct and simple; we are more concerned with the application of the principles of surgical pathology than with the elaboration of apparatus. It is a striking thing that our colleagues who are working in France have been able to respond to practically all of their needs in the way of mechanical appliances by means of six pieces of apparatus, as they may be modified to suit the various exigencies. Those who know the men will also know that this has not been done at the cost of efficiency. Let us take heed, therefore, and not fail to learn the lesson, for our greatest task is at hand. Let us realize that the fundamental thing about the orthopedic point of view is not that we shall possess superior knowledge in the application of mechanical methods, but rather that we shall be adept in utilizing the mechanics of physiology under conditions both normal and abnormal. From this, after all, must our mechanical methods of treatment be derived.

To my mind, there could be no greater mistake for the orthopedic surgeon than to find in the demand for large numbers of his kind the cause for self-congratulation by reason of the fact that recognition of his merit has become inevitable. On the contrary, he should be sobered by a sense of increased responsibility and should be impelled to inquire with a view to ascertaining the reasons and thus enable himself to respond most efficiently to his enlarged duties. Do we find an explanation of the need for an unusually large proportion of orthopedic surgeons in the Army in the large number of wounded, simply? Are the wounds of war so different from those of peace that we find in this the explanation? Has military practice brought forth methods of orthopedic surgery so different from those of peace that this must be considered the reason? Perhaps, with nothing but information at second hand and without any personal military experience, I am not qualified to make the inquiry and consequently surely unable to furnish the answer. I shall leave the decision open, to be finally made by

*Address of the chairman of the Section on Orthopedic Surgery, read before the joint meeting of the Section on Orthopedic Surgery and the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

those whose right to form it is beyond question. At the same time it seems to me that I can forestall it. From the information at hand I believe that however different the causes of injury in combat may be from those operative in industrial life and in times of peace, the results on the human organism can differ only in degree and in the conditions under which the surgeon must do his work. I dare say that there are few injuries of war whose prototypes have not been encountered for years by the surgeons of our large industrial establishments, even though in numbers small beyond comparison in consideration of the time unit. If this be true, perhaps it would be even fair to say that, to this extent, we have always been at war.

WORK OF THE ORTHOPEDIC SURGEON

From the recorded experience of our allies it is already evident that the work of the orthopedic surgeon has accomplished certain things which have established a new value for him in the eyes of military leaders. Through his work many wounded men have been returned to active military duty within a reasonable time, who under former conditions must have been relegated to civil life with their industrial usefulness impaired; thus have been saved to the government two losses. The one is a military loss, as complete as if death had resulted, and perhaps even greater since the burden of care must fall on the military establishment. The second may be spoken of as an economic loss by as much as it means a reduction of the productive activity of the nation; in consideration of the large numbers involved in present day warfare, it constitutes a very great economic loss.

To the members of this section I need say but little concerning that which constitutes modern orthopedic surgery; they, of all persons, should understand that it does not mean a system of practice, that it is neither operative, nonoperative, manipulative nor mechanical in its methods, but that it avails itself of all of these resources as the occasion demands. That which is characteristic of orthopedic surgery today is an especial and distinctive point of view. Sir Robert Jones has expressed this in epigrammatic form by saying that "the orthopedic mind thinks in terms of function." I am unable to refrain from quoting two additional sentences from his recent address before the Hunterian Society. He said:

> The pathetic side of an orthopedic center is the collection of physical disabilities which should never have been. The inspiring fact is, that in our experience, hardly a case is to be found to whom we cannot offer help.

Reflection will disclose that within these two short sentences are to be found the widest limits of our activities in cases of traumatic damage.

The justification of specialism can, however, never rest in what the specialist says he can do but in that which speaks for itself as an accomplishment. Neither is specialism in any department of human endeavor to have its *raison d'être* in the limited capacity of the specialist, if it is to mean much to humanity. Specialization in scientific fields is to be justified only as it constitutes an element of human progress. That it may do so implies that men of high ability will devote themselves to it and that they shall have the advantage of applying their talents to a field of limited extent only in order that it may be tilled with unusual care, that its problems may be studied without interference by that diffusion of interest which is necessarily associated with a great multiplicity of questions. One is to be a specialist, therefore, not in order to fit the task to an aptitude which is restricted, but rather to apply a larger vision to the solution of difficulties in a sphere which is narrowed for the sake of a greater efficiency, and not for any other reason. The success of special endeavor depends, therefore, on the measure of its particular efficiency. Men of distinguished ability are often led astray, however, by the temptation to widen unduly the compass of their labors and at the expense of thoroughness; they fall into the error of believing that their capacities are too great to be confined. The distinctiveness of the product of such a state of mind is far more likely to be quantitative than qualitative. Let us, therefore, not say to ourselves by preference, How many more things can we do? but rather, How much better can we do them? By as much as we can do them better, shall we prevail.

FUNDAMENTAL IDENTITY OF PROBLEMS CONCERNING WAR CRIPPLES AND PEACE CRIPPLES

The burden of my message, however, may be found in the fact that the sentences which I have quoted from Sir Robert Jones are pregnant with meaning, not simply in respect of the injuries of war, but likewise in respect of those of peace. Except as a compound comminuted fracture of the femur has been produced on the battlefield by bullet, shrapnel or shell, it does not materially differ from the one produced in railroad yard or steel mill, as concerns the prevention of deformity and the preservation of function, to begin with, or the correction of deformity and the restoration of usefulness when the primary indications have failed of being met. Unfortunately, both the pathos and the inspiration of Sir Robert's words are as apposite in industrial practice of peace times as they are in military experience, notwithstanding the disparity in numbers involved. The principles are the same; once a man has lost an extremity or has had it crippled, it does not matter how it happened; the possibilities of restoration to usefulness and the means of accomplishment are the same. In some respects the war cripple is, in fact, in advantage over the industrial cripple; he has the advantage of being a part of an exigent national problem, appalling by its magnitude but attractive by its patriotic appeal. The industrial cripple, on the other hand, is very likely to be looked on as the private concern of his employer, whether corporate or individual. The pity of it is that it has required the impulse of a world catastrophe to furnish the proper stress for these facts; they should have been commonplaces in every center of industrial activity in times of peace. But this has not been the case, save in exceptional instances. Immense effort has now to be made to provide curative workshops, equipment for physical therapy in its various forms, and a skilled personnel to operate them, as if these were peculiarly the needs of war times. This is true, however, only as concerns the greatness of the needs. We are plainly guilty of having neglected the means of physical and psychic reconstruction in our days of peace, and we now see the writing on the wall. Orthopedic surgery has been held within too narrow limits, but we are now compelled to recognize the fact that this has had the effect of making the surgeon himself too contracted in his outlook.

The call is for us to meet the emergency of the appalling situation of war, first of all and by all means. We must not rest content with this, however; we must

emerge from the world conflagration as orthopedic surgeons with the broadest outlook, and we must look on the lessons learned in the reconstruction and rehabilitation of maimed soldiers as a heritage to be passed on to the coming generation of our profession and our people at large, but also to be incorporated at once into the service of those whose sacrifices have been made in the peaceful, but nevertheless relentless, combat of industrial enterprise and production. Not until this has been done shall we have responded to our duty in an adequate manner.

THE FREQUENCY OF PULMONARY COMPRESSION SIGNS IN ACUTE FIBRINOUS PERICARDITIS *

HENRY A. CHRISTIAN, M.D.
BOSTON

In books on physical diagnosis, attention frequently is called to dulness and bronchial breathing in an area of varying size in the left back just in the region of the angle of the scapula or below it as an accompaniment of pericardial effusion. For example, Musser,[1] under the heading of "Pericardial Effusion," says:

> Pulmonary resonance is modified posteriorly. At the angle of the scapula is a small area of dulness, increased vocal fremitus and bronchovesicular and bronchial breathing when the patient is sitting upright, which disappears when he leans forward (Bamberger's sign). The dulness in large effusion includes the axillary region so that it may simulate pneumonia or pleural effusion.

Roberts[2] thus discusses these pulmonary signs in pericardial effusion:

> In considerable pericardial effusion, the condition of the left lung may give rise to a definite group of signs at the back of the chest on that side; namely, a limited area of deficient resonance or actual dulness, about the size of a crown piece, generally localized in the vicinity of the angle of the scapula with increased vocal fremitus, bronchial or tubular breathing, and bronchophony or egophony. Sansom regarded these as valuable signs in children and young subjects. I have in a few instances noted them in older persons, in a pronounced degree. Dr. Ewart attaches special diagnostic importance to a patch of marked dulness at the left inner base, which he described as of square shape with abrupt boundaries, extending for a variable distance from the spine outward and upward, but limited. Over the dull patch respiratory sounds are absent and voice sounds feeble.

Robey,[3] in discussing fluid in the pericardial sac, says:

> In these cases almost all authors, Billings, Babcock, J. Mackenzie, Cabot, Musser, Parkinson, call attention to a small area of dulness in the left back just inside the angle of the scapula, described by Ewart and produced by mechanical atelectasis of the compressed lung.

These various authors seem to lay emphasis on the pulmonary signs described by them as indicating very considerable amounts of fluid in the pericardium. The writings indicate that the signs are found chiefly in patients who would be diagnosed as having pericarditis with effusion. In my own experience I have been struck with the very great frequency of occurrence of abnormal physical signs in the left lower lobe of the lung in cases which ordinarily would be diagnosed as cases of acute or fibrinous pericarditis because of the presence of a to and fro friction rub over the precordium.

In my wards at the Peter Bent Brigham Hospital I have had opportunity to observe fifty-three patients, almost all adults and some elderly, in whom, among others, the diagnosis of acute pericarditis was made because of an audible pericardial friction rub. Of these fifty-three patients, thirty-nine, or 73.5 per cent., showed abnormal physical signs indicating some sort of a pathologic condition in the left lower back. These were not patients with signs indicating extensive pericardial effusion, but rather, so far as signs over the precordial area go, probably patients with fibrinous exudate, at least over the anterior part of the pericardial sac. Seventeen of the thirty-nine patients showing pulmonary signs had acute articular rheumatism on admission or had had an attack a very short time before admission.

As an example of the occurrence of these compression signs, Case 1 will serve:

> CASE 1 (P. B. B. H. Med. No. 1159).—A woman, aged 48, was admitted to the hospital, May 5, with a history of acute rheumatism beginning one week prior to that time. On admission her heart was essentially normal and her lungs were normal. May 14, she had a recurrence of acute rheumatism. May 19, a slight pericardial friction rub was detected over the precordium. By May 25 this friction rub had become very distinct. June 2, the pulse suggested partial heart block. June 8, there was made out at the left back below the angle of the scapula moderate dulness with distinct bronchial breathing. Three days later bronchial breathing at the left base was loud and there was distinct bronchophony. By June 9 these pulmonary signs had entirely disappeared. During the period of the rheumatism, the patient's temperature fluctuated between 100 and 102 F. During the period of development of the pericarditis and of the signs at the left base, the temperature fluctuated from normal up to 100, from which point it gradually fell to normal; but the change in temperature was at no time sudden, such as might be expected from a consolidation ending by crisis.

When the physical signs are more extensive, the difficulty of making a diagnosis is increased, as is shown in Case 2:

> CASE 2 (P. B. B. H. Med. No. 2201).—A man, aged 20, admitted, January 20, with a history of developing rheumatism three days before he came in, was found on admission to have normal heart and lungs. January 23, there was a suggestive pericardial friction sound, and the area of cardiac dulness was slightly increased. The pericardial friction rub became much more definite, January 26. Jaunary 28, roentgenoscopy revealed only a moderate degree of cardiac enlargement, and no pulmonary lesion. January 29, pericardial friction sounds had disappeared. February 3, dulness and bronchial breathing were noted in the left back from the spine of the scapula to the base, and in the left axilla below the fourth rib. The observer interpreted these as compression signs. Another observer on the same day interpreted the findings as consolidation in the left lower lobe. A little later, on the same day, bronchial breathing was noted in the entire distribution of the left lower lobe, including that portion of the lung that lies over the lower outer quadrant of the precordium. The finding of this very extensive consolidation coming well over the precordium indicated to this observer that there was an actual consolidation rather than simply compression. Two days later the dulness and bronchial breathing persisted over the lower back as well as over the precordium. On this day the left chest was tapped in several places to see if any fluid

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* From the Medical Clinic of the Peter Bent Brigham Hospital.

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Musser: Practical Treatise on Medical Diagnosis for Students and Physicians, Philadelphia, Lea and Febiger, 1913, p. 615.
2. Roberts, in Allbutt and Rolleston: System of Medicine, New York, the Macmillan Company, 1909, **6**, 61.
3. Robey, W. H., Jr.: Acute Pericarditis, Am. Jour. Med. Sc., 1917, **153**, 529.

could be obtained. All of the tappings were negative. On the next day in the left back dulness was found from the middle of the scapula to the base. Over the upper part of the dull area there was distinct bronchial breathing for from 2 to 3 cm., then a rapid decrease to distant and finally practically absent breath sounds. Two days later the signs in the left back were noticed to be decreasing, and during this period the temperature gradually fell to normal. By February 11 the signs in the left back had decreased so that there was remaining only a small area of intense bronchial breathing just below the level of the angle of the left scapula with rather suppressed breath sounds generally throughout the back. During most of these observations no râles were heard in the left lower back. February 13, another roentgenogram of the chest disclosed nothing to indicate fluid or pneumonic consolidation on either side. March 1, the patient complained of pain in the left side, and a slight friction rub was heard. The next day, on the right side low down in the back there was dulness to flatness with markedly decreased breath sounds, absent tactile fremitus, and the voice sounds had a nasal quality. Roentgen examination of the chest revealed the signs of a moderate amount of fluid on the right side. Two days later 300 c.c. of fluid were withdrawn from the right chest. Following this the signs in both backs gradually cleared up, and no abnormal pulmonary signs were made out subsequently during a prolonged stay in the hospital.

In this case, during part of the time at least, it seemed probable that there was actual consolidation of the left lower lobe. However, the patient ran the same course as others in which the pulmonary signs were regarded as due to compression.

Another example is afforded by Case 3:

Case 3 (P. B. B. H. Med. No. 3799).—A woman, aged 40, began to have rheumatic pains four days before admission. When she came in there was a pericardial friction rub audible over the precordium, and slight dulness at the left base of the lung. Two days later the dulness at the left base was more marked, though not more extensive, and over it bronchovesicular breathing was heard and there was a slight nasal twang to the whispered voice sounds. Ten days later the dulness was still present, and there was the same quality to breath and voice sounds over the left lower back. Two days later it is described as being a practically flat percussion note from the midscapula to the base on the left, with distinct bronchial breathing and bronchophony but no râles. This area extended to but did not occupy the axillary region. Three days later the dulness had increased and breath and voice sounds had become somewhat distant, suggesting fluid in the left chest. A trocar was introduced, and 300 c.c. of fluid were withdrawn. After withdrawal of the fluid, the dulness decreased; but the bronchial character to the breath sounds persisted. During all this time the pericardial friction persisted, and three weeks later it was still present and the pulmonary signs on the left remained as previously described. Ten days later the pericardial friction had disappeared, and the pulmonary signs were gradually decreasing.

Here there was demonstrated pleural fluid in moderate quantity; but its removal did not greatly alter the physical signs, and it seemed as if in addition to the fluid there was some other cause for most of the physical signs described above.

In another patient very similar conditions existed:

Case 4 (P. B. B. H. Med. No. 6225).—A woman, aged 62, entered the hospital, February 28, with chronic nephritis. March 15, she developed a to and fro friction rub over the precordium and showed slight dulness over the left lower back, with distinct bronchial breathing over part of the dull area. Two days later the pericardial friction rub was loud and there were both bronchial breathing and bronchophony in the left lower back. The following day she died and necropsy revealed acute pericarditis with a slight excess of pericardial fluid. In the left pleural cavity there were 300 c.c. of fluid, and the left lower lobe of the lung showed atelectasis.

Here pleural fluid without doubt contributed to the pulmonary signs in the back, but atelectasis was more marked than one ordinarily encounters with that amount of pleural fluid. Still in this particular case there was but little pericardial fluid at the time of death.

The physical signs in these cases have varied much. In some the dulness is slight, in others well marked; usually it is distinct, and if small in area, occupies the region just about the angle of the scapula. When more extensive, it occupies the lower one third to one half of the back; but as a rule it does not occupy much of the axillary region. Over the dull area in part or in the whole there is bronchial breathing of varying intensity and bronchophony. Râles are usually not present.

EXPLANATION OF THE PHENOMENA

What causes these pulmonary signs with acute pericarditis? Their great frequency in this group of cases indicates a causal relationship. That the signs described above are nearly always on the left and rarely found on the right suggests that they are related to the heart in some direct way. Two explanations offer themselves: one, that a distended pericardial sac presses on the lung and causes compression signs; the other, that an inflammatory process extends from the pericardium to the adjacent pleura or lung and leads to changes there responsible for the pulmonary signs.

In most of our cases the heart outline was not greatly increased in size, and the pericardial layers were in contact, at least in front, as shown by the to and fro friction rub. The pulmonary signs here described are not common with cardiac hypertrophy and dilatation unaccompanied by pericarditis, even when the size of the heart is very great. Williamson[4] has emphasized the early appearance of fluid about the apex and behind the heart in pericardial effusion a position in which pressure would be exerted readily on the lower left lobe of the lung; and this suggests a possible reason for pressure on the lung from a distended pericardium with a friction rub heard over the precordium. However, in the necropsy cited, only a little excess of fluid was present in the pericardial sac, and this was true in a second necropsy.

In none of our cases with these signs was there clinical evidence of extensive pericardial effusion. In a few cases the attempt was made to tap the pericardium, but no fluid was obtained. Consequently it would seem that these pulmonary signs may occur when there is no excessive amount of pericardial fluid and so no very great mechanical pressure from the heart and pericardium of this origin. If they result from pressure, the element of quick development of dilatation of the pericardial sac and especially of the posterior portion must be an important element.

On the other hand, in several cases we have obtained small but never large amounts of fluid from the left pleural cavity during life, or found it at death in the few fatal cases; but in other cases no fluid could be demonstrated by puncture. The finding of pleural fluid suggests an extension of the inflammatory process to the pleura, with a moderate pleural exudate causing pressure on the lung or possibly leading to consolidation of the lung. In the necropsy just cited, atelectasis of the left lower lobe of the lung was found. As we have seen the cases, the pulmonary physical signs clear up gradually while the temperature curve gradu-

4. Williamson: The Medical Clinics of Chicago, March, 1917, p. 937.

ally declines as the signs of pericarditis disappear. Moreover, those pulmonary signs seem to have little influence on the course of the disease. Often they occur when the patients are not very sick and do not influence to any extent the respiratory rate. Most of the patients recover except those in whom the pericarditis is more or less a terminal event in some chronic disease. All of this is against an ordinary pneumonic consolidation. Perhaps both factors are present—there is pressure from a distended pericardium or pleural fluid or both, and some inflammatory change within the lung accentuates the effect and causes the physical signs, when under other circumstances equal pressure from an enlarged heart or pleural effusion does not lead to similar signs.

Whatever the explanation, dulness, bronchial breathing and bronchophony over the left lower back are very common accompaniments of acute pericarditis, and in our experience when found suggest acute pericarditis even though at the time of the observation no pericardial friction rub is detectable. In a few cases we have made this tentative diagnosis, and in a few days have heard the pericardial friction rub develop as confirmatory of our opinion. In our experience, these signs do not indicate necessarily any large amount of pericardial fluid nor call for any attempt to tap the pericardium to withdraw fluid.

SUMMARY

In a large percentage of patients with acute pericarditis (thirty-nine, or 73.5 per cent. of fifty-three patients observed), definite physical signs are found in the left lower back. These are dulness of varying extent and usually bronchial breathing and bronchophony. The signs appear to be the result of compression of pulmonary tissue, that is, atelectasis of the left lower lobe. Moderate amounts of pleural fluid are often demonstrated. Compression either from the heart and pericardium or from the pleural fluid or from both appears to be the main cause. Intrapulmonary changes of an inflammatory nature may play a part, but this is not proved. The frequency of the occurrence of these signs and their localization on the left point to some causal relationship to the acute pericarditis. The pulmonary signs exert little influence on the course of the disease and the prognosis. Almost all of the patients recover, except those in whom the pericarditis is more or less a terminal event in some chronic condition.

ABSTRACT OF DISCUSSION

DR. WILLIAM H. ROBEY, JR., Boston: Sir James Mackenzie states in his book that on one or two occasions he has tapped in this posterior area which Dr. Christian mentioned, supposing that he was dealing with a pleural effusion. Later, from the relief in cardiac signs, he was convinced that he had aspirated a posterior cardiac effusion. In one case which I found in the literature these signs were present near the angle of the left scapula. Pericarditis with effusion had been suspected, but on aspirating the sac in the anterior areas usually selected for aspiration, no fluid was obtained, still the symptoms indicated that fluid was present. Aspirating near the angle of the scapula brought forth 400 c.c. of seropurulent fluid. Four or five days later, there still being cardiac distress, aspiration was again attempted and 600 c.c. of seropurulent fluid were removed.

It is surprising how much fluid the pericardial sac can hold. Cases have been reported in which as much as 3,500 and 4,000 c.c. have been found in the sac. In a case which we had in the Boston City Hospital there was very evident cardiac distress, but there was also a left pleural effusion. The patient was a child, 11 years old, with hydrothorax, and with very marked cardiac symptoms, dyspnea, breathlessness, orthopnea. On tapping in the axillary median line evacuated some fluid, but very little relief was obtained from the cardiac distress. Tapping again in the same area, and pushing the needle forward, a large amount of bloody fluid was obtained, and the patient had almost immediate cessation of the cardiac symptoms. What we did was to go unwittingly into the pericardial sac on the second aspiration, causing cessation of the symptoms.

The cases which are apt to mislead us are those in which the heart is pushed forward against the chest so that there is no diminution in the sounds, and we feel the cardiac impulse against the chest wall with considerable force. In one case the sounds were so prominent we were doubtful of the presence of fluid, but the roentgen ray showed a steadily increasing cardiac area, and aspiration removed 150 c.c. of fluid. Of course, if you get any fluid on aspiration, it means that there is an increase in the amount, because the 50 c.c. which the sac normally contains for lubrication is so evenly distributed in the pericardial sac that it cannot be obtained unless the sac is distended.

Another point: In these early cases the patierts will give no indication, such as pain. In only 25 per cent. of the cases of fibrinous pericarditis is pain a symptom. I know that this is at variance with the experience of many clinicians. Possibly, the reason is because quite a number of the cases occur in the course of pneumonia, and the patient is so ill and so often suffering from pain in the chest due to the pneumonia that the pericardial pain is overlooked; but in some of the worst cases of purulent pericarditis that I have seen, and which I have followed from their inception, there was no pain at any time. Pain, if it does occur, is apt to be present very early in the disease when the sac begins to be distended. Of course, if there is a fibrinous rub, an indication of fibrinous pericarditis, that may be the only sign elicited that fluid is accumulating, but, as Dr. Christian says, in cases in the rheumatic group the effusion is apt to quiet down, and Dr. Chapin says he has never had occasion to aspirate the sac.

DR. H. D'ARCY POWER, San Francisco: As I understand, the principal question brought up by Dr. Christian is the pathogenesis of the symptom of dulness over the base of the left lung occurring in many cases of pericarditis, and, seemingly, the amount of necropsy evidence is not very large. That is the reason it is well to give the necropsy findings in one undoubted case of this type. Some time ago I reported four cases of chronic nephritis of the so-called Rose-Bradford type. One of the patients died and three or four days before death the symptoms referred to by Dr. Christian were very marked; that is, on first seeing this case, there was a distinct pericardial friction rub and a distinct area of left basal dulness, with the usual signs of consolidation. At necropsy there was entire absence of any consolidation in the lung. The lung was in the state of passive hyperemia and slightly edematous. The heart had great left ventricular hypertrophy, but, nevertheless, it was a small heart, and there was only a little fluid in the pericardium, though there was sufficient evidence of the pericarditis to account for the physical signs. The case is valuable because it is clear that the pulmonary condition was not due to pericardial compression from fluid in the pericardium, nor was it due to any enlargement of the heart itself. There must be some other factor which we must seek for to account for this frequent left-sided pulmonary dulness in pericarditis. I have met with it frequently, but this was the only occasion I have had to check the diagnosis by necropsy.

DR. FRANK B. WYNN, Indianapolis: The cases reported by Dr. Christian suggest the etiology from the rheumatic standpoint—a clear history of rheumatism, followed by friction rub and such physical signs as would ordinarily be expected in pericarditis. I assume, from what he stated and the other speakers said, that the opinion generally held is that pericarditis arises from infection through diseased tonsils and bad teeth, contaminating the blood stream, and so the pericardium becomes infected. More frequently than is generally supposed, pericarditis arises from contiguity of infection in the

pulmonic and pleural tissues. In turbeculosis of the lungs and pleura, especially in children, the necropsy often reveals extension to the pericardium. Pericarditis is of much more frequent occurrence than we have been taught to believe. In the postmortem room one is impressed by the frequency with which white spots are observed over the parietal pericardium, indicating pericarditis during life.

Dr. George D. Head, Minneapolis: I have been struggling during the last winter with three of these cases which Dr. Christian has described. There are many difficulties which confuse the determination of the actual condition existing in the lung, in the left pleura and in the pericardium. The absence of fluid in the left pleural cavity as revealed by the exploring needle and the absence of the signs of fluid in the pericardium and the presence of well-marked signs of dulness and tubular breathing in the base of the left lung, leaves one with the impression that a consolidation of the lung exists. Necropsy experience, however, clearly indicates that this is not the case, in many cases. Inasmuch as the patients rarely die, one does not have an opportunity of confirming the diagnosis by postmortem examination. In none of the cases which I have had an opportunity of studying has death occurred. I would like to ask Dr. Christian whether postmortem evidence in the two fatal cases which he reports showed a large fibrinous exudate in the pericardium, without evidence of fluid, and whether, in his opinion, in any of these cases the signs exhibited in the left lower lung posteriorly were caused by pressure symptoms produced by a pericardial sac distended by a fibrinous exudate. I should like to know whether the necropsy findings in Dr. Christian's cases revealed the presence of a large fibrinous exudate in the pericardium.

Dr. Lawrence Litchfield, Pittsburgh: Unless I am mistaken, you are going to learn more about pericarditis than ever before. If you take the conditions we have had at the base hospitals as an indication of what you are going to have in civil practice, you are going to have a lot of these streptococcus cases of pericarditis, serous, serofibrinous and purulent. The question of tapping the pericardium is an interesting one. I have seen many cases of streptococcus empyema, many of them with pericardial effusion, and the varieties of the pocketing of the fluid—in different parts of the pericardium, in the pleura overlying the pericardium, and beneath the anterior lappet of the lung at the side of the pericardium, and behind the pericardium—make it so enigmatical that I do not feel you can be absolutely certain in any given case whether you are in the pericardium or not. I did feel much more confidence until in a recent case we got pus by needle in an empyema overlying the pericardium, and diagnosed pyopericardium, yet the operation showed this pus to be in the pleura, while postmortem showed that there was also considerable fluid in the pericardium, but serofibrinous. It seems to me that the greatest aid we have in determining the presence and location of fluid is the most careful, systematic and oft-repeated fluoroscopy of all these cases. We at Camp Lee would feel that we were almost hopelessly crippled if you took away our fluoroscope. All our doubtful chest cases are fluoroscoped, and fluoroscoped repeatedly, in both horizontal and upright positions, when possible, and at all possible angles of obliquity. I know of no other method of investigation which has added so much to our knowledge of these cases. Fatal cases have been roentgenographed postmortem also, and fluoroscopic and plate findings studied by the light of the necropsy findings.

Dr. Granville Ryan, Des Moines: In a limited number of cases the fluoroscope has been a wonderful aid in determining whether empyema was present or whether it was a case of lung abscess or of pericarditis with effusion. Major Miller of Camp Dodge called my attention to the great value of the fluoroscope, and of percussing the patient in the upright position. The fluid can be seen very plainly. In a number of these cases we have found a beginning pericarditis associated with or following acute rheumatism, with a hypostatic condition of the lower lobe of the left lung. By getting a good roentgenogram we found a marked shadow in the lower lobe of the left lung, and by giving the patient expectant treatment the lung cleared up and the pericarditis cleared up largely within a very short time as the symptoms of the rheumatism cleared up.

It has been my observation that many of these cases of pericarditis have followed acute infections of the throat. I feel that many men have made a mistake in overlooking the streptococcus infection of the throat or passing it by lightly.

Dr. Henry A. Christian, Boston: I want to emphasize the good prognosis in these cases. From physical signs the outlook is pretty serious—the patient has an acute infection of the pericardium, there are physical signs in the lungs that, off-hand, suggest pneumonia. Almost all of the patients get well, and you need not worry very much about the outlook. I have not included any cases of pneumonia and empyema in this group I have reported, but have dealt with those cases which begin as acute infections and have signs, as far as we can judge, of pericardial exudation. I realize the great difficulty of localizing fluid, especially in connection with the typical types of pneumonia and the frequency with which these types of infection are accompanied with trouble in the pericardium; but these cases are not included in this group, and there is no reason to suppose that in the cases I reported empyema or pneumonia was present, except for the physical signs. The fact that these patients get well without tapping, without any particular treatment, except for their rheumatism, is strong evidence against their having empyema and fairly good evidence against their having ordinary pneumonia. Roentgen-ray studies in these cases have not given very much information. The physical signs are behind the heart shadow, and in rotating the body to get a better view you get tangled up with the shadow of the vertebral column and you do not get a very good picture. The roentgen ray has not helped us much in detecting fluid in the pericardial sac. The roentgenologist diagnoses its presence from the silhouette of the heart. In my experience there usually is no fluid. My reason for saying that is that those particular cases diagnosed as pericardial effusion by the roentgenologist often terminate fatally, and at necropsy you do not find fluid. I have a number of such cases recorded. Pericardial effusion, in my experience, in the sense of fluid being present in sufficient amount to embarrass the heart and need tapping, is an unusual condition. In the last five years we have successfully tapped the pericardium twice, once in a child with pus. The patient died the next day, and necropsy showed that, although we had gotten a considerable amount of pus out, we had also left some behind. The other case was one of pericardial effusion in which we at one time removed 600 c.c. of fluid. The second time we removed 400 c.c. of fluid. The patient died two months later. Necropsy showed some chronic change in the pericardium with no recurrence of the fluid. Neither of these cases with the large amount of fluid showed these pulmonary signs of compression. Why, I do not know.

Now, you may say, we miss a great many cases of pericardial effusion. Perhaps we do. If these cases that I have reported have pericardial effusion, they have it in insufficient amount to require tapping. Against the fact that we miss many cases where pericardial effusion is an important factor in the condition of the patient is the fact that we have averaged necropsies in 60 per cent of our fatal cases, and no case has turned up with considerable pericardial effusion, except in the two I have referred to, and they were discovered during life. So that the number of cases with fluid requiring tapping is very small. It is an unusual condition to have fluid in the pericardium of adults that requires tapping, and there is no reason to tap the cases such as I have described; in fact, there is no reason to worry about them, because at the time these patients do not look sick, and almost all of them get well. What the infection is I do not know. I have given some suggestions as to what the pathology is. Those are only suggestions, because we have had necropsies in only two cases. They showed atelectasis without any considerable amount of fluid in the pericardial sac or in the pleural sac. The exudate was fibrinous with a very moderate amount of fluid.

Lice on Flies.—The *Hospitalstidende* quotes a German writer to the effect that human body lice have been repeatedly found clinging to the bodies of ordinary house flies.

PUS IN THE FEMALE PELVIS

A SURGICAL RETROSPECT *

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In 1877, Mr. Tait published a series of papers recording his observations on the etiology, pathology and treatment of ascending infections of the uterus and adnexa. For many years following his teachings, then considered revolutionary, a most bitter controversy ensued. He was subjected to the severest criticism and abuse. In England and on the continent, as well as in America, the profession was divided, many men rallying to the teachings of the Birmingham School of Gynecology and many others fiercely opposing them. At the International Medical Congress in 1881, Sir Spencer Wells, in a bitter attack on Mr. Tait, made the statement that he had seen only one case of pus tubes and that he supposed they all went to Birmingham.

As time went on, Mr. Tait and his pupils demonstrated conclusively the fact that pyosalpinx was due to an ascending infection and that cellulitis, parametritis and perimetritis were, with rare exception, secondary to infections of the tubes. It was also conclusively demonstrated that such conditions were susceptible to radical surgical relief.

In this country, under the leadership of the late Joseph Price of Philadelphia, a similar battle was waged. To Price, more than to any one man in America, is due the credit of having placed pelvic surgery on a sound and substantial basis.

MANY RECOVERIES WITHOUT SURGICAL AID

A review of the literature of the last thirty years on the treatment of pus in the female pelvis will show that the pendulum has frequently swung from extreme radicalism to ridiculous conservatism. All must admit that in the early days of this work, tubes and ovaries, which are so essential to the health of women, were sacrificed by the thousands. This, however, was in no sense due to the teachings of Tait or his pupils. In one of his works,[1] he states it to be his belief that many cases of acute inflammation of the uterine appendages end in complete recovery, and he further states that there can be equally no doubt that a very large number of them do end in this way.

But these are not the cases that are seen by the specialist. The patients who come to us are chiefly those who have recovered from the acute stage and passed into a condition of chronic invalidism. This class includes those who suffer from chronic ovaritis, chronic salpingitis, even simple adhesions of these organs, and who are always worse still if the adhesions are complicated by occlusion of the fallopian tubes and their distention, either by serum or by pus or by bloody fluid; and any man who has run through a long experience of general practice may easily call to mind fifteen or twenty cases of the kind that he has seen, all of which ended under his care in apparent recovery: That is, the acute stage passes off and the patients rise from their beds, after a more or less prolonged convalescence. But he does not see these twenty cases ten or twelve years afterward. Those of them in whom the damage has been sufficiently great to cause prolonged suffering, seek relief from the specialist at the hospital or in his consulting-room; and therefore it is that the shield concerning which so much discussion has arisen is found to have both a gold and a silver side, and has to be looked at from both sides before a reasonable understanding can be arrived at.

WATCHFUL WAITING VERSUS OPERATION

After all, the treatment to be applied to any given case of purulent salpingitis must be left to the judgment of the surgeon in charge. It has been clearly established that general peritonitis following salpingitis is an exceedingly rare occurrence. It has also been clearly proved that in 98 per cent. of these cases, the acute condition will subside if the patient is given a rest in bed and proper medical attention. It is, therefore, safe in all cases to practice watchful waiting and to govern future operative treatment by the conditions present after the acute inflammation has become tranquil. It has also been demonstrated that such patients may be operated on with safety during an acute attack. In view, however, of the fact that many of them recover completely without operation, it is unwise to operate at this stage, as such work would, in all probability, lead to unnecessary sacrifice of the tubes and ovaries, which, if left alone, would be restored to usefulness by nature. In those cases in which acute exacerbations of chronic pelvic inflammation occur and in which the uterus is fixed and the adnexa are tightly bound down by old adhesions, it is wiser to defer operation until they become quiescent.

Dr. F. F. Simpson of Pittsburgh, in a paper read before the American Gynecological Association, advocated that all such patients should be put to bed and that no operative work should be done until they had been free from high temperature for three weeks. Dr. J. G. Clark of Philadelphia, has pointed out the impossibility of carrying out this procedure in the average hospital case. While admitting the wisdom of Dr. Simpson's contention, he urges earlier interference.

I cannot persuade myself to believe that tubo-ovarian abscess with multiple abscesses and strictures in the fallopian tubes can be relieved by any operation short of radical removal. Cases have been reported by most competent observers in which these conditions are relieved by baking, tamponing, curetting, hot douching, and similar conservative methods of treatment. Apostoli and his pupils reported many cases of fibroids cured by electricity, but we hear nothing of this treatment today. If gynecologists are able to cure such patients by treatment of this type, they are not the type of cases that come under my care. Neither do I believe that such patients can be cured by vaginal drainage or that most unsurgical procedure, rectal drainage.

A study of the tissues removed from the type of patient that is now subject to radical operation will demonstrate this conclusively. Incomplete work is responsible for an immense amount of suffering. I heartily agree with Mr. Tait when he says, "I am quite certain now that in the hands of a competent operator there are no adhesions of the uterine appendages which cannot be overcome, and no case ought to be left unfinished. Incomplete operations are the opprobrium of abdominal surgery, and operators ought to be more discredited by them than by anything else."

It is unnecessary before an audience of this type to discuss the technical details involved in the handling of such conditions. Each case is a law unto itself and the surgeon must adjust his work to meet conditions.

* Read before the Section on Obstetrics and Gynecology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Tait, Lawson: Diseases of Women and Abdominal Surgery, Philadelphia, 1889, p. 377.

DRAINAGE

There are certain points relative to drainage to which attention may well be called, as the outcome depends largely on the proper application of a drain. After the operator separates the adhesions and removes large and inflamed pus tubes, whether the operation be removal of the adnexa or a hysterectomy, the culdesac is left denuded. We were taught by Price the value of the coffer dam drain. Dr. Coffey of Portland, Ore., a few years ago in a paper read before this Association, elaborated on the technic of applying this drain. With slight change in detail the method of Coffey is almost identical with that of Price. When the pathologic condition has been removed and all angulations of the small bowel have been separated and denuded surfaces have been covered, with the patient in the Trendelenburg posture, the intestines are lifted up out of the culdesac. Gauze tape about 36 inches in length is now placed from right to left, filling the culdesac and covering all raw areas. The end of the gauze is brought out at the lower angle of the wound and slipped through a very thin rubber tube. The wound is then closed in the usual manner.

A properly adjusted drain of this type, I am confident, will prevent many cases of postoperative ileus. Such drains can be removed without difficulty, and while an occasional hernia may result from their use, the clean convalescence of patients who have received a peritoneal toilet of this type more than offsets this objection.

CONCLUSIONS

1. Many patients with acute salpingitis recover and remain permanently well without operative intervention.

2. Ninety-eight per cent. of such cases will become quiescent and the pathology will be limited to the pelvis.

3. With rare exceptions, operative work should not be undertaken in the acute stage of pelvic inflammation.

4. When operative work is undertaken, it should be radical in the extreme.

Irish Moss as a Food.—Consul H. Abert Johnson, Dundee, Scotland, says (*Commerce Reports*, June 21, 1918) the Dundee Food Control Committee has recently had its attention directed to the value as a food of what is known as carrageen, or Irish moss. It is claimed that the potentiality of carrageen as a food has been fully recognized by Scotch and Irish people for generations.

Carrageen is known in various parts of Scotland under the name of "hen's dulse"; to the scientifically inclined it is known as chondrus crispus. It grows abundantly on rocks and stones within the littoral zone, flourishing in salt water which has a dash of fresh in it. In its natural state it has the appearance of dwarf dulse, the small flag being soft and cartilaginous, and in color it ranges from a greenish yellow to a purplish brown. When picked and sun dried it becomes translucent and of a horn-like consistency. Among the poorer classes in Scotland it is boiled in water until it assumes the consistency of porridge and is served in a like manner with milk. It forms a jelly in about 20 to 30 times its weight in water, but is more commonly used in making various kinds of puddings. Other purposes for which it may be utilized is fining beer and in connection with calico printing. It has 55 per cent. of mucilaginous matter, 10 per cent. albuminoids, and 15 per cent. mineral, being rich in iodin and sulphur. There is little doubt that carrageen, if methodically collected and properly used, would help in augmenting the national food supply.

RECTAL SECTION FOR PELVIC ABSCESS*

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Several years ago, before the Surgical Section of this Association, my senior associate, Dr. A. MacLaren, called attention to the efficacy of rectal section in certain phases of peritonitis. During the succeeding years the operation has, on many occasions, served its purpose to such a satisfactory degree that we have become earnest advocates of its use and are continually seeking the opportunity to have it performed. Such a method of drainage, departing from more accepted methods, lacking refined technic, and in some degree offending surgical principles, can be made popular only when it can be proved worthy.

It may be that the operation is in universal use, but the results are too variable, the experience with it too limited, and the procedure too simple to secure for it the consideration it merits. In speaking of its performance, we are met with more or less surprise, as though it were an entirely new suggestion. Often the justifications and indications are questioned, particularly on the grounds that pus accumulation in the abdomen may be reached by more accepted surgical avenues.

Those of experience in gynecologic surgery need no advice in the selection of cases for vaginal section. This was, at one time, an operation in wide use and patients were frequently subjected to it, many of whom would today be considered unfitted for it. It is our experience that vaginal section is becoming ever less frequent. It is probable that in many such cases, classed as tubal in origin, the infection was due to other causes. The great advance in the science of midwifery and the wider information on the perils of abortion and miscarriages have, beyond a doubt, greatly diminished infection of these organs. It is true, however, that in many cases the effect was most satisfactory, followed by immediate recovery, and it is certain that pelvic abscess of appendiceal origin was not uncommon among them.

It would seem reasonable to expect that peritonitis, resulting from appendicitis, with all the publicity and exhaustive discussions would lead to a full appreciation of the necessity of early surgical attention. There are, however, many cross currents of opinion as to the proper method of care, not only affecting the profession but also confusing the laity. The result is that the problem of perforative appendicitis and peritonitis is ever present.

The diagnosis of acute appendicitis is not always easy. The sequence of general abdominal pain, nausea or vomiting, localization of tenderness in the right fossa and occurrence of varying degree of fever, runs true to form in most cases. Nevertheless misinterpretation or minimization of the symptoms, neglect of the patients, and lack of hospital care or difficult transportation lead to frequent cases of perforative appendicitis, not only of recent origin but also of many days standing. Even in early operation, the chance of insufficient or indirect drainage is always present, and with the inexperienced operator and sometimes with operators of experience, the first operation may be incomplete.

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* Read before the Section on Obstetrics and Gynecology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Pelvic abscess is therefore a possibility in every case of acute perforative appendicitis, and may form, early, late or remote, because of the several foregoing contingencies. Its occurrence is most serious to the patient who must submit to further operative work, and most disturbing to the surgeon who assumes the responsibility. It is possible, then, that this simple procedure may solve the problem.

VARIOUS ASPECTS OF THE OPERATION

There is but little to say and the comments to be made may be briefly summarized as follows:

1. It is not in any sense an exploratory operation! Digital examination should reveal a round, resistant mass—a bulging of the anterior rectal wall. It is surprising how far distant from the anus this may occasionally be. Any uncertainty should lead to a postponement or acceptance of other measures. On three occasions, under imperative circumstances, the puncture was made either without result or with the result that so small a quantity of pus was obtained as to have no bearing on the case. We have come to believe that its use should be limited strictly to that case in which the mass is well defined.

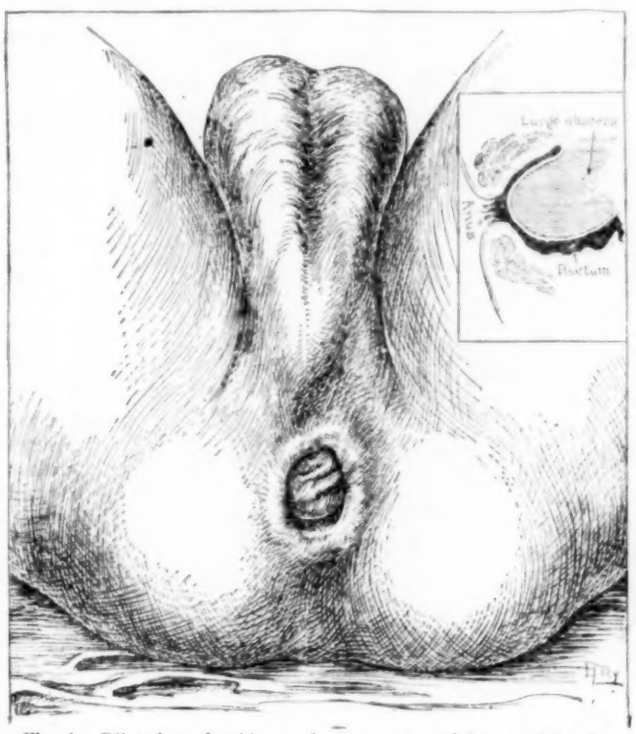

Fig. 1.—Dilatation of sphincter from pressure of large pelvic abscess through anterior wall of rectum.

2. When it is a primary operation, the patient is brought in with rigid abdomen, with all the constitutional signs of virulent infection involving a large area of the peritoneum, and in such a condition owing to the long period of the inflammation that a laparotomy would be most critical, as evidenced by the high mortality in these cases. Almost constantly laparotomy reveals fluid in the pelvis constituting the general feature of the general peritonitis. We have come to believe that if the abdominal pressure can be relieved by the removal of the fluid from below, the patient will thereby gain the balance and the laparotomy attack will be withstood without risk. This was done in seventeen cases, in two of which the situation was cleared so satisfactorily that the patients refused formal operation and left the hospital without further attention. It is, however, seldom that the pelvic accumulation is sufficiently definite at an early date in the course of the inflammation to justify puncture. In several of these cases the puncture was done on the fourth, fifth and sixth, and, remarkable to state, on the tenth day. When the patient has weathered the process this long, localization has to some degree taken place, and it must be admitted that several of the patients in the seventeen primary section cases would have recovered without its performance. It has the very great advantage of evacuating the quantity of pus, which often adds to the seriousness of the formal operation. The puncture will drain only a part of the field and if it is undertaken, laparotomy should soon be done, as the primary abscess about the appendix may lead to a recrudescence of the serious symptoms.

3. It is as a secondary operation that it has its greatest effect and is best considered as an accessory—a follow-up procedure in the complicated case.

4. It should not be considered a last-resort operation. We have been called to operate on moribund patients who were carried along by so-called conservative measures to a point beyond relief. We believe that no patient should be denied the operation, whatever his condition, providing the local indication is present, nor should a few or a series of successful cases lead one to accept it in lieu of laparotomy in the hope of the formation of a pelvic abscess.

Under this heading, attention is also called to the fact shown in two cases, that rectal drainage will not always drain pus from the left fossa, so that a temporary improvement should not argue against counter opening above.

5. The operation has no advantage over vaginal section and its use is thereby confined to men and children.

6. The dangers and risks of section are not to be considered because of the usual imperative circumstances. The bladder should always be emptied by catheter as the inflammation contiguous to this organ may cause incomplete emptying. Puncture of the bladder, however, may lead to no serious results, providing the damage is immediately repaired. In one early case, the bladder was opened and closed without causing any symptoms whatever. Some vessels of the rectal wall may be cut across. In one very young child there was a good deal of bleeding. This baby died, and death may have been due to hemorrhage, although at the time our feeling was that her death was inevitable. In no other case was there any accident.

7. The technic (if the operation may be so dignified) is simple, involving an empty bladder, a thoroughly dilated sphincter, the demonstration of the mass back of the prostate, the incision by sharp pointed scissors, the dilatation of the opening by dull pointed forceps, and the insertion of a winged rubber tube. If the patient is in an exaggerated lithotony position, it sometimes brings the field more in line with the eye. This helps a great deal at times and it is surprising how far back from the anus the point may be. The tube remains a varying period and is to be left longer rather than to be removed early. Several times it was reinserted and we have seen no ill effects from delayed removal.

The search for pelvic abscess is really the most important feature. It is surprising how frequently the rectal examination is forgotten when in many conditions its value is proved. While all women with acute abdominal symptoms are subjected to vaginal examination, the rectal examination in men and children is often overlooked. When a patient is under observation it is not wise to allow one examination to decide. Repeated examinations are necesssary, as it is surprising what changes may occur in a few hours. In this connection I shall cite one remarkable case: A routine examination of a young boy, to whom I had been called in the country to drain an empyema, and who presented some abdominal symptoms which could readily be placed as concomitant to the lung condition, revealed a pelvic abscess. I was then able to do a rib resection and rectal puncture at the same sitting and cure the patient, whereas a laparotomy, under the circumstances, would have ended fatally.

CONCLUSION

It is difficult to present any statistics and I think it hardly necessary, for the reason that the occasion for the performance of the operation is not frequent. Keeping it in mind and looking for it several years, we made the puncture in but fifty-three cases. The principles of abdominal drainage are well standardized and rectal drainage is not suggested as a substitute for established methods. But once in a while, a critical situation arises in which a rectal examination will reveal an accumulation so definite as to solve the problem. The primary section is but a temporary affair and must be followed soon by the major operation procedure. The secondary section is often dramatic. The patient, already subjected to formal operation, has every expectation of recovery, but does not do well, the pain continues, and the fever is still up. He is restless, anxious, often critical of nursing and orderly attention and fearful of further surgery. It is then that this operation merits closest attention. In the properly selected case, its effect is positively startling.

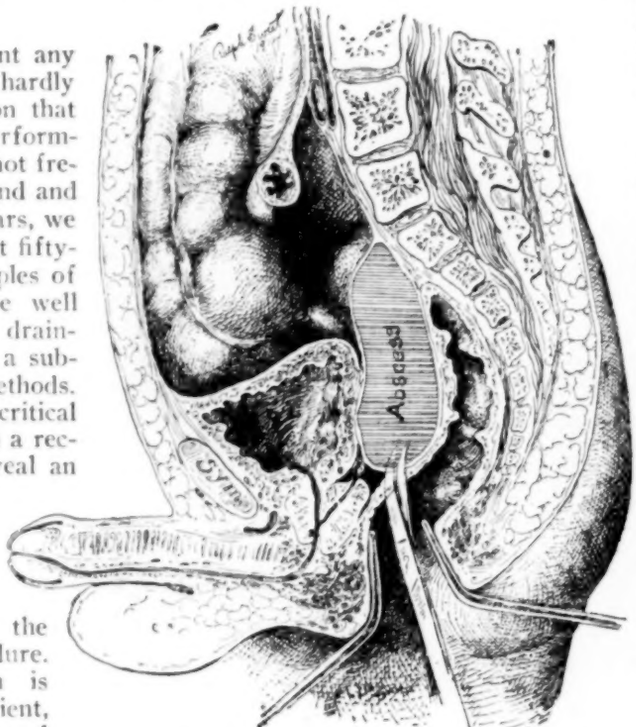

Fig. 2.—Method of opening small pelvic abscess; scissors used to puncture abscess and as dilators.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BROWN AND RITCHIE

Dr. J. H. Carstens, Detroit: All the work we have been doing for twenty-five years ought to enable any doctor to diagnose appendicitis; and, if you have a case of appendicitis, why open down in the rectum, when you can get the appendix out so much more easily through the right inguinal region. Nature walls off this abscess, plasters on exudate, plasters on intestine and plasters on omentum to keep it localized in that particular place, and then if you will open the abscess you will have no trouble in draining it, and in twenty-four cases out of twenty-five healing will take place. So, I cannot see why we should open it in the rectum. In an exceptional case, in which an abscess develops between the bladder and the rectum, wholly spontaneously you might say, the abscess might be opened through the rectum. But in that kind of a case a cure is attained spontaneously by rupture of the abscess into the bowel. We followed Tait and Price for a good many years. Tait had wonderful results because he operated on these old chronic pus cases that were sterile. We, in this country, did not always wait until the case was chronic and sterile, but operated in the acute stage, with the result that our mortality was 15 instead of being 4 or 5 per cent. Finally we learned that the best thing to do was to let the acute cases alone. Ninety-nine per cent. of them will recover. If later they show symptoms we can do whatever is necessary. In some of these cases radical operation must be done. You may have to remove the tubes, but you can usually save the ovaries, or at least one. One of the gentlemen spoke of the so-called cofferdam of Price. He is about twenty years behind the times. Why not drain by gravity? In these cases I open the culdesac and insert a little rubber tube with a cross piece, so that it will not slip out, and that will drain. I close the incision absolutely, and whatever septic material may have to come out goes down the drain. When the acute symptoms have subsided, showing that the microbes have been killed and walled in, then is the time to operate.

Dr. E. E. Montgomery, Philadelphia: Having graduated at about the time that Tait issued his great lesson on surgical treatment of pelvic inflammation, and having been contemporaneous with Dr. Price in the work which he did in Philadelphia, I appreciate greatly the work done by these men. They were positive in their opinions, and yet much has been learned since their time concerning the treatment of many of these conditions. Patients suffering from gonorrheal infection of the tubes, with a palpable mass in the pelvis, have been advised of the absolute necessity of removal of such an inflammatory mass, but refused operation, recovered and gave birth to children. This led to the knowledge that many of these patients do much better surgically if operated on late. As has been said, after the microorganisms die the condition becomes sterile. In another class of cases the inflammation extended through the tubes leading to inflammation of the peritoneum and a mass within the pelvis. It was then found that a vaginal incision might be employed for relieving acute symptoms in a case unfavorable for radical operation and that many of these patients recovered. This was shown to be a procedure which could and should be employed in cases with a mass in the pelvis capable of being reached readily through the vagina. In other cases it was found that abdominal operation was necessary. I fully agree with Dr. Carstens that there should not be drainage through the abdominal wall, that the patient should not be subjected to the discomfort of such drainage, to the prolongation of convalescence and the danger of subsequent hernia when drainage is so readily possible through the vagina. In many of the cases in which there was extensive suppuration within the pelvis, the packing of gauze, supplemented by the introduction of a tube, kept the intestines out of the pelvis until the peritoneum could be reformed, and spared the patient the danger of adhesions. The tubes and ovaries are not always responsible for pelvic abscess. The appendix may be the cause. In such cases the evacuation of the pus will not afford complete relief, because there are other pus pockets higher up around the appendix.

I recently saw a woman who had pus in the pelvis. I opened the abscess through the vagina. Drainage tubes did not give the expected relief. An abdominal incision was made and it was found that the appendix was the cause of the infection. There was pus not only around the appendix but higher up, walled off in the liver and spleen. In this case, therefore, drainage had to be instituted on both sides of the upper abdomen as well as through the vagina. The patient recovered. Now, in reference to the paper by Dr. Ritchie in which the abscess occurred as the result of appendicitis and was walled off in the lower part of the abdomen bulging into the rectum, there is no reason, in my judgment, why he should not, as a prophylactic measure, open this abscess and effect evacuation. This leaves the patient no worse, better, indeed, because he has gotten rid of that pus. The cases, in my judgment, would be limited to men, since the vagina affords a much better means for relieving the condition in women. Whenever the intestines are patulous, with no kinking above the point where the bulging occurs, an incision in the rectum has no ultimate bad effect.

DR. G. N. THOMAS, El Paso, Texas: Our point of view on the subject treated in these two papers depends on the line of work we are doing, the nationality of the patients and the grade of operations. We all agree on the different stages of pelvic conditions. Few surgeons would want to operate during the acute stage. In the El Paso County Hospital most of the work is done on Mexican women. The infection is nearly always neisserian and probably in all cases goes through the vagina, uterus and tubes. In the American woman the infection is mixed and enters through the broad ligament producing adhesions down in the culdesac. I divide the infection into the acute stage and the stage in which the inflammation runs a normal course. If a secondary temperature starts up and there is marked bulging over either tube the case is surgical in almost every instance. If the case, after running an acute course, becomes normal and with proper care the temperature and symptoms do not again become pronounced, operation is avoided. The cases which are best treated through a vaginal incision are those in which there is bulging of the culdesac and fluctuation. In other cases better results are obtained by abdominal section, and then the stab puncture in the culdesac is unnecessary.

DR. MATHER PFEIFFENBERGER, Alton, Ill.: Walling off the abscess and proper drainage has reduced the morbidity and mortality in these cases to a minimum. Comparing the condition of pus in the pelvis to pus in the appendix and gallbladder would, in the latter case, liberate the pus as quickly as recognized. Why not do likewise in the pelvic cases when it could be done safely? Dr. Ritchie spoke of a well defined mass in the pelvis and evacuation per rectum. Both tubes may be involved in the female and yet only one abscess is palpated. One tube might be evacuated and the other not. My practice is to make a rectal examination in appendiceal trouble. You can then easily explore and ascertain whether the abscess is in the pelvis. The abdominal route with drainage, in my opinion, gives the best results.

DR. HORACE G. WETHERILL, Denver: It is hard to believe that the nationality or race of the individual patient would make a very great difference in the pathologic process. It would make little difference whether the infection were "neisser" or not so "nice." Certain types of infections run certain courses. It is the consensus of opinion today that abdominal operations should not be done in the acute stage of tubal infection. After they have become chronic, operation may be done with better results. The infection is more or less self-limited, and if we let it alone it will often take care of itself, and the patient may even bear children afterward. The limitation of the infection is governed by the biology of the particular bacterium involved, and the life of most bacteria is limited. If we are going to operate on these patients in the chronic stage by an abdominal operation we must consider carefully whether we want to drain, and, if so, how. My experience is that in cases in which a very considerable degree of sterilization has taken place no drainage whatever is necessary. I have gone in, as all of you have, broken up these cheesy masses, taken them out and closed without drainage and had the smoothest possible convalescence. I agree with Dr. Carstens as to drainage. One more phase of this question must be considered. We know now how infections may be taken up from certain local foci in the blood stream and may cause difficulties in other parts of the body. We must consider these local foci of infection from the standpoint of a focus from which a constitutional infection may arise, and it frequently becomes necessary to do an operation because of constitutional toxemia from such origin.

DR. PETER B. SALATICH, New Orleans: One of the mistakes many of us make, and which is the reason we have hernia, is the fact that we leave too big an opening for the drain. I leave only room enough beside the drain for the entrance of the forceps. As a means of preventing adhesions I take a piece of rubber tissue and suture it with fine catgut to the bottom of the pelvis so that it will come up in a fan-shape, then close the incision as tightly as possible. I do not drain by the vagina. Many of these patients have too short a rest period. I keep the patient in bed for four or five weeks, and after the temperature has subsided and remains so for three or four days, if the structures are movable, I operate. I remember one case of pelvic drainage in a woman who had an abscess on the right side above the umbilicus. The temperature was 105 F. Drainage was established through the vagina. In two or three years it was necessary to do a laparotomy, when I found that this tube was absolutely free, the only evidence of drainage being a small patulous opening about the center. Another mistake we make is that we drain for too long a time. I make it a rule when I put two cigaret drains in to take them out at the end of forty-eight or ninety-six hours. Then I place one little drain at the level of the incision.

DR. ROBERT T. MORRIS, New York: In any acute inflammatory process the bacterial involvement will be self-limited. The best way to control the acute process is by the Clark opium treatment. It is the best treatment if you do it in the right way. In West Virginia they say that whisky is a cure for snakebite, but that the only way to use it right is to "have it in you when you're bit." If you are going to use opium in the right way you must get the respirations down to 10 and 12 and keep them there. Clark says do not measure the amount of opium you give, but measure the respirations of the patient. There is much to be done in the way of conservatism in the saving of structures. Often we do not find the fimbriated end of the tube. I do not believe in removing the uterus. I am sure it has an internal secretion of its own. You can do a lot of conservative work where you really are at liberty to use judgment in your conservatism. In the acute stage you cannot use conservatism. Here the means of making a diagnosis are not on the same basis.

DR. JOHN YOUNG BROWN, St. Louis: My paper dealt entirely with ascending inflammations of the pelvis. Those of us who are old enough can recall that fifteen or twenty years ago Henrotin of Chicago advocated doing away with laparotomy and urged that all pus collections be attacked from below. In all inflammations above the pelvic brim I operate early. When the condition is an ascending infection the time to operate is when the condition is quiescent. Hard and fast rules of when to operate and what operation to do cannot be laid down; each case is a law unto itself. Regarding drainage from above, I agree that many cases can be closed without any drainage at all. The cofferdam drain I have been using is used not so much for drainage, but to lift the intestines up out of the pelvis and to prevent the small intestine falling back and producing ileus. I have never seen a case in which I felt justified in opening an abscess through the rectum. If the conditions were reversed and the abscess were attacked from above and it happened that the rectum was injured there is not a man who would not close that abdomen with a good deal of temerity. I have never seen an occasion to do this operation. I have seen one case in which there was a large accumulation of pus in the pelvis, with the woman in an acute condition with a bulging abscess in the vagina. As a primary measure such a case should be opened through the culdesac and further work done governed by the conditions left. Each case of this type is a law unto itself and the sur-

geon must adjust his work in accordance with the condition which confronts him.

DR. HARRY P. RITCHIE, St. Paul: I want to correct any impression I may have given that rectal section ought to take the place of any formerly recognized procedure. Practically every case has been subjected to the ordinary drainage. When one presents such a bizarre operation for drainage, it is certainly open to criticism. Only under certain circumstances is it justifiable. When the abscess presents at the pelvis and a simple procedure will give evacuation of this abscess from below there is no question but that it is the proper thing to do and is an easy way out of a critical situation.

THE TOO INTENSIVE ARSPHENAMIN TREATMENT OF SYPHILIS*

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Syphilis therapy, in spite of its remarkable present day attainments, remains, as ever, a greatly mooted problem. There is much variance in opinion in regard to what agents and methods best subserve their purpose. The modern arsphenamin remedies of par excellence, and the remarkable laboratory achievements in therapeutic precision and control, have been able to secure scarcely more unanimity of opinion in this special field of therapy than the less efficient remedies and the uncertain methods of the past.

Seven years of general experience with arsphenamin has been ample to accord to this remedy its well recognized preeminence as the most efficient of all antisyphilitic remedies. Nothing has yet been advanced, however, to clearly, definitely and decisively demonstrate that any one given method of systematic treatment answers its purpose best.

Arsphenamin therapists can be conveniently divided into two factions: (1) those who believe in intensive, frequently repeated, almost to the point of tolerance, and long continued administrations, and (2) those who practice a more conservative, less frequently administered plan of treatment. The former method has by far the greater number of adherents, and has received almost universal sanction and recognition.

In my early arsphenamin experience I adopted the intensive method of treatment. I shared the general conviction that if one administration was efficacious and devoid of deleterious results, a half dozen or more well tolerated administrations could be manyfold more efficacious. A year of carefully exercised serologic control and clinical study, soon changed my conviction. Cases intensively treated compared very unfavorably with those which received only one or two administrations. The well-to-do individual who eagerly sought and received the most prodigal attention became usually serologically fixed positive, and showed persistent clinical manifestations which nothing could favorably influence. The indifferent, careless, negligent and often indigent patient who received only one administration, and wilfully absented himself for six months or a year, almost uniformly showed no trace of clinical manifestation and became serologically negative. These routine observations soon led me to adopt a more conservative plan of treatment, and after an interval of a year I presented my results to Ehrlich in a personal visit. Ehrlich informed me that he was most favorably impressed with the results, but good as they were, he believed that they would be far better if I returned to the more intensive form of treatment.

I returned to my work impressed that I had made a tactical error, and resolved again to employ intensive arsphenamin treatment. I was not long in again reaching the conviction that conservative treatment was conducive to more favorable results. After another year's interval, I again returned to Ehrlich and submitted my tabulated results. Ehrlich this time acknowledged that his former advice may have been erroneous and that he was beginning to experience a growing conviction that there was a good basis for my contention.

I have since that time steadfastly employed a conservative method of arsphenamin therapy, based on clinical observation and serologic control. Every case of syphilis, not previously treated with arsphenamin, received a commensurate full dosage of arsphenamin which is not again repeated in from four to six months, except in the face of a threatening and serious clinical manifestation. A serologic examination is made every thirty days for the first six months. If there is no material change for the better, or the serologic examination shows a relapsing character, treatment is repeated at the end of the first four months. If the serologic reaction shows improvement, but is not negative, or if there are fairly well defined clinical manifestations, treatment is invariably repeated in six months. This plan is continued until the patient becomes persistently serologically negative and devoid of all manifestations of well defined clinical nature.

SEROLOGIC CONTROL

I have the utmost faith and confidence in a careful, well exercised serologic control. This faith and confidence would not be nearly so great if it reposed merely in the Wassermann reaction. The Wassermann reaction is eminently trustworthy in the sense that a positive Wassermann reaction indicates positive syphilis. The test, however, does not possess sufficient delicacy, even with cholesterinized antigen to demonstrate more than a moderate degree of therapeutic progress. For the past three years, I have employed both the Wassermann test and the Hecht-Weinberg serologic control test as cleverly modified by Gradwohl, and I am supremely impressed with their combined efficacy, delicacy and reliability in exercising the highest degree of diagnostic and therapeutic control. Both are exceedingly valuable and indispensable in efficient therapeutic management, and bear a reciprocal value to each other. The Wassermann reaction uniformly shows the first evidence of improvement, and frequently reaches a complete negative phase before the Hecht-Gradwohl test becomes completely negative. It presents, in the absence of clinical manifestations, the best evidence that can be adduced that therapy has progressed to a satisfactory stage. Relapses can be noted in the Hecht-Gradwohl reaction long before it is evidenced in the Wassermann test, and usually long before the manifestation of a clinical nature. The Hecht-Gradwohl test is positive in incipient syphilis before the Wassermann reaction, and is indispensable as an aid in early diagnosis. Furthermore, the two reactions are a check on each other, and are in a position to overcome any discrepancy or error in technic.

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the Americal Medical Association, Chicago, June, 1918.

REPORT OF CASES

From 1911 to 1918, I treated 1,133 cases of syphilis in private practice, for the most part in the early stages, employing the conservative method of treatment as outlined. Some of the early cases were treated intensively, and quite a number received preliminary intensive arsphenamin treatment at the hands of confrères before placing themselves under my control. In all, 10,589 serologic examinations were made. After deducting 286 patients who wilfully or unwilfully absented themselves from further observation within ninety days after initial treatment was instituted, and 245 patients who were serologically and clinically negative cases, less than two years, and forty-six cases which were positive not longer than one year, there remained 456 sufficiently long and carefully observed cases to permit the following deductions. Of these cases 367, or 80 per cent., were serologically and clinically negative for two or more years. Of the 367 negative cases, 154 passed to a clinical and laboratory negative phase with one administration, many of them being under regular systematic observation for more than five years; 107 passed to a negative phase with two administrations, 53 with three administrations, 27 with four, 9 with five, and only 17 with six or more. Of the 89 positive cases, 30 have failed with three, 20 with four, 16 with five, 11 with six, 3 with seven, and 9 with eight or more arsphenamin administrations. Seventy-five per cent. of the positive failures give a negative Wassermann reaction and are free from clinical manifestations. With these excluded, this conservative method of treatment yields about 5 per cent. of abject therapeutic failures from a clinical and serologic standpoint. The latter cases, however, give a Hecht-Gradwohl test that is positive, many weakly positive, and as such must be looked on as incomplete results. Quite a number of the patients who show a persistently positive Wassermann reaction were recipient of intensive initial arsphenamin treatment.

LABORATORY STUDIES IN SPIROCHETE DRUG TOLERANCE

Laboratory investigation is in a position to cast some light on past and present clinical and therapeutic results. Ehrlich and Hata[1] were able to demonstrate, as early as 1910, that repeated injections of arsenic in animals and man would produce a strain of spirochetes which so successfully resisted arsenical medication as to merit the special designation of "arsenic-fast." Similar investigation with bacteria have yielded similar results. Of greater interest and more practical importance are the recent laboratory investigations of Akatsu and Noguchi.[2] These investigators determined the degree of tolerance of pure cultures of the *Spirochaeta pallida* to arsphenamin, neoarsphenamin, mercuric chlorid, iodin, and potassium iodid in vitro against gradually increasing doses of these drugs. A gradual increased resistance of the organisms against these various agents could be distinctly noted. The *Spirochaetae pallidae* increased their resistance to arsphenamin and neo-arsphenamin within from three to four months, five and one-half times their original mark. The same organisms increased their resistance to mercuric chlorid from thirty-five to seventy times; and to potassium iodid about three times. This acquired drug fastness in vitro disappears when the spirochetes are cultivated in drug-free mediums for several generations. It is fair to assume that what takes place in vitro can also occur in vivo, and particularly if the analogy bears some degree of clinical confirmation.

INTENSIVE AND CONSERVATIVE SYPHILIS THERAPEUSIS OF THE PAST

Long before the discovery of the cause of syphilis and present day laboratory achievement, the therapy of syphilis was an equally mooted problem. The remedies which were used were naturally the products of pure empiricism, and the methods for their administration were the result of careful clinical study and observation. Therapy at that time was as much mooted as today. There were eminent syphilographers and therapists who practiced and advocated intensive, uninterrupted treatment, covering years and years. There were many who practiced more conservative, and a more interrupted form of treatment. These investigators of the past had little to guide them, aside from empiricism and careful clinical study and observation. Present day laboratory investigation and achievement enables us to give their results a more intelligent and comprehensive interpretation.

Those who employed intensive, uninterrupted and long continued treatment in the past were doubtless actuated by the long and frequent relapsing character of the affection. Those who practiced a more interrupted and more conservative method of treatment, doubtless noted that continuous and uninterrupted treatment did not entirely prevent clinical relapses, nor stay completely cerebrospinal complications. In fact, many to this day are of the opinion that tabes and taboparesis find their largest contingent in persons who, in the past, have taken protoiodid continuously for two or more years without any interruption. Furthermore, they observed when clinical relapses occurred in patients receiving continuous and intensive treatment that these relapses became worse instead of better, if treatment with mercurials and iodid was further intensified and prolonged. They further observed that a clinical result could only be obtained if antispecific remedies were entirely removed for a period of several months and temporarily replaced by general tonic treatment. In other words, they observed clinically and empirically what the laboratory is today able scientifically to demonstrate, namely, that syphilis in a relatively short time acquires a tolerance to antispecific remedies, which is not removed until the individual is given a definite respite from further specific treatment.

The rapidly acquired tolerance of syphilis to antispecific remedies readily accounts for the results that sometimes follow the use of inert proprietary and quack remedies. It doubtless explains the supposititious value of remedies of the sarsaparilla type. A combination of senna and licorice has been credited in Europe and elsewhere as a highly successful therapeutic agent in the treatment of severe intractable syphilis. This was no doubt in large measure due to the fact that many cases of intensively treated syphilis enjoyed a well deserved respite when the remedy mentioned was temporarily substituted for the overworked mercury and potash.

1. Ehrlich and Hata: Die experimentelle Chemotherapie der Spirillosen, Berlin, 1910.
2. Akatsu, S., and Noguchi, H.: Drug-Fastness of Spirochetes to Arsenic, Mercurial and Iodin Compounds, in Vitro, Jour. Exper. Med., 1917, **25**, 349.

THERAPEUTIC CONSIDERATIONS

It must be conceded that the ideal goal in syphilis therapeusis would be reached if Ehrlich's concept of a "therapia sterilsans magna" could be successfully attained. Such a remedy should possess a maximum of parasitotropic and a minimum of organotropic activity. The arsphenamin remedies are the nearest present day approximate of this desideratum. Mercuric chlorid possesses much greater parasitotropic activity, but its marked organotropic properties preclude its use in this special direction. It is needless to state that the arsphenamin remedies have not attained Ehrlich's concept of a "dosis sterilsans magna." It is possible that the full extent of their parisitotropic power within reasonable limits of organotropic activity have not been fully consummated. The careful study of method and dosage may effect some improvement in this direction. It must be acknowledged that many cases proceed to an apparently successful clinical and laboratory recovery with a single administration of arsphenamin. It is also noteworthy that the greatest degree of clinical improvement and usually the most prompt and greatest amount of serologic improvement follows on the heels of the first administration. It is quite possible that two or three quickly repeated treatments before sufficient time has elapsed to establish arsphenamin tolerance, would give equally good or better results. Inasmuch as the parasitotropic properties of the remedy depends on its degree of concentration, I believe that a single maximum initial dose should theoretically effect the best therapeutic results. I particularly decry the long continued administration of small fractional doses. This is a form of treatment that is particularly prone to establish arsphenamin tolerance, and is so evidenced in clinical experience. I am also strongly opposed to a too intensive arsphenamin therapy. Patients have come to my personal notice who have received, within from six to twelve months, from ten to fifteen arsphenamin administrations, and remained serologically ++++, and with unmistakable clinical manifestations, which made satisfactory clinical progress and showed laboratory improvement only when arsphenamin was entirely withdrawn for a period of from four to six months.

It is reasonable to assume that present day clinical experience with arsphenamin bears a close analogy to mercury of the past. Experience with mercury has taught us that there are many cases that have fared badly in a clinical way with very persistent and intense treatment; that many have fared extremely well with very neglected and indifferent treatment. Many cases progressed often to an apparently satisfactory clinical recovery with little and indifferent treatment, and developed intractable severe manifestations only when a very energetic treatment was instituted. The old adage of "let sleeping dogs lie" has a possible application in both instances, and finds further exemplification in the arsphenamin provocative reaction in cases that have been persistently serologically negative, and free from clinical manifestations, which after a single administration of arsphenamin become strongly and persistently serologically positive, and develop intractable clinical manifestations.

Syphilis therapy is too often inconsiderate of the fact that it is often best to leave well enough alone. It is much more difficult to refuse than to give attention. One of my early preceptors was prone to frequently remark that a man should often be rewarded more for doing nothing than something. Its significance was never fully appreciated until the realm of medicine and syphilis therapy in particular were thoroughly invaded. It is unfortunate for an individual to know that he is infected with syphilis; it is doubly unfortunate for that individual not to realize within the lapse of a few years that he is clinically well, and that he must continue his treatment from month to month, and year to year indefinitely, in order successfully to ward off future complications. Under such a regimen, neither patient nor physician possesses any moral assurance of a satisfactory recovery. Syphilis is essentially an affection in which the patient should be treated as well as the disease, and to lead such an individual to the point at which he becomes, as it were, a hopeless drug addict is unfortunate. The repeated administrations of arsphenamin even at long intervals, though well tolerated; the intermittent administrations of mercury and iodid, in their various forms; and all other forms of antisyphilitic treatment, if unnecessary, cannot be other than baneful. There is an incomparable degree of personal satisfaction to patient and physician to feel that a definite goal has been reached which precludes further treatment and attention, except an annual or semiannual serologic examination. There is an inexpressible degree of peace of mind to the patient, when he can realize that he can place his head on his pillow at night and entertain no fears that the succeeding six months, year or two years, will bear him untoward results. Thanks to arsphenamin and serology, this assurance can be granted to the vast majority of syphilitic patients within two or three years.

CONCLUSION

This paper is prepared and presented in order to set forth that there may be considerable unnoted virtue in a conservative method of arsphenamin treatment. Its second and no less important purpose is to impress that too intensive arsphenamin treatment may be conducive to unlooked for deleterious results. What is set forth in this direction is based on painstaking clinical and laboratory study of a fairly large number of patients, in private practice, carefully and routinely observed for a goodly number of years. They are not intended to express an absolute conviction, nor are they presented with the hope that they will receive general and universal acceptance. I trust that they will bear future investigation and study and possibly stimulate others along similar lines so that a better and more general comparison between intensive and conservative treatment of the future can be elicited. I feel assured as far as my personal experience permits me to judge that my results compare most favorably with those who have pursued a more intensive arsphenamin treatment of the past, and the recent interesting laboratory investigations, which have clearly established gradually acquired arsphenamin tolerance on the part of the *Spirochaeta pallida*, add material weight and color to my contentions. The fact that out of a grand total of 1,133 cases, from which 677 were eliminated as unfit for careful report, 80 per cent. proceeded to a clinical and laboratory recovery without trace or evidence of any infection for a period of two or more years, must speak somewhat in favor of such a conservative method of treatment. If we can add to these 367 cases, 65 cases that were negative to the Wassermann test and clinically negative, but

more or less persistently positive to the Hecht-Gradwohl control test, 95 per cent. of cases proceeded to a clinical recovery. This negative phase was reached by 154 cases with only one administration of arsphenamin or neo-arsphenamin, and in 107 cases with only two administrations.

19 West Seventh Street.

ABSTRACT OF DISCUSSION

DR. JOHN A. FORDYCE, New York: Dr. Heidingsfeld does not state in what stage of the infection his results in the treatment of syphilis were obtained. In early syphilis, before the Wassermann reaction becomes positive, it is possible to abort syphilis with comparatively few doses of arsphenamin. How many doses may be required we cannot tell. In fully developed secondary syphilis it usually requires at least two courses of arsphenamin of six doses each, combined with intramuscular injections of mercury and followed by mercurial injections, for a period of two or three months, before the Wassermann reaction yields to treatment. In my opinion, it is advisable in all cases of secondary syphilis to continue the treatment at intervals for a year to insure the patient against a relapse. I have repeatedly seen patients in early syphilis, treated with two or three injections of arsphenamin, who have left the hospital and returned within six months or a year with precocious ulcerative lesions of the skin. It is difficult to compare the serologic results obtained in different laboratories, but we have not been able to influence our cases either clinically or serologically with the amount of treatment which was employed by Dr. Heidingsfeld. He should have stated more carefully the stage of the disease in which his results have been obtained by the use of the minimum amount of treatment as indicated. I am not in favor of the very intensive treatment which is advocated by certain syphilographers. I think we should feel our way carefully and give 0.3 or 0.4 gm. of the drug for the initial dose, gradually increasing the dose to 0.5. The first three or four doses may be given at intervals of five or six days, the next two or three doses at intervals of a week. At the end of this time I think we should permit an interval of six weeks to elapse before repeating another course of arsphenamin. I have seen very injurious results from too intensive treatment. In one patient, who received fourteen injections of arsphenamin at a well-known sanatorium at three-day intervals, a very widely disseminated form of exfoliative dermatitis resulted, followed by the death of the patient. It is very difficult to formulate in definite terms the size of the dose, the intervals and the number of treatments. It is largely individual and depends to a great extent on the experience of the physician.

DR. BUDD C. CORBUS, Chicago: I should like to ask Dr. Heidingsfeld on what conclusions he bases his results. Is it on the blood Wassermann alone? I do not doubt that in some cases he was able to get an early clinical cure of the disease because there are many different strains of spirochetes. The most important factor, however, is the negative blood Wassermann, checked up with the spinal fluid Wassermann. Many cases with a negative blood Wassermann show spinal fluid involvement. In this class of cases my procedure is a most intensive intravenous therapy, followed by a spinal fluid drainage. It is much better to run the risk in overtreating an individual rather than have him succumb to paresis or some other form of spinal fluid involvement. In one case I have given as high as forty-one intravenous arsphenamin treatments for spinal fluid involvement. This patient has maintained his negative serologic test for over a year without any treatment.

MAJOR W. L. MCBRIDE, Fort Riley, Kan.: Within a few years I am sure that men can report favorably on the intensive results of treatment. In the Army men now get a minimal dose of 5 grains, with gradual increase, receiving eight injections in all in a little over seven weeks, then rest forty days, and then the serologic test is made. The cases are being observed carefully, records are made, and before long I am certain reports will come in from men interested in this work giving you just what this intensive treatment means. So far we have not noticed any deleterious results. A few slight accidents have occurred, but these men are given the treatment as laid out by the department. Probably a year or two will elapse before you can get the actual result, but many cases are under observation, and I am sure we can come to definite conclusions before long as to what intensive treatment will mean to these men.

DR. JOHN E. LANE, New Haven, Conn.: If we have learned anything in recent years about the treatment of syphilis it is that the intensive treatment in the early stages is necessary and that in the stage of the chancre before the Wassermann reaction has become positive the amount of treatment is limited only by the patient's ability to stand the dosage without danger. By intensive treatment in the early stages I mean the injection of arsphenamin combined with the injecton of mercury. It has been demonstrated pretty well that both can be given together without danger and that in many cases this treatment, begun before the Wassermann reaction becomes positive, prevents it from ever becoming positive. The treatment of late syphilis, especially of syphilis of the nervous system, is a problem of an altogether different nature. The control of the cases classed by Dr. Heidingsfeld as cured seems entirely inadequate. Dependence on the Wassermann reaction of the blood without any consideration of the findings in the spinal fluid does not give sufficient evidence of a cure.

DR. RICHARD L. SUTTON, Kansas City: If I were to be infected with syphilis and had to depend on any one drug for treatment, I should prefer mercury above all others. Wile and Elliott and Schamberg and his associates have found that inunctions give the maximum therapeutic effect with minimum renal irritation, and I think the drug should be administered by this route. In my experience it is extremely difficult to secure a negative serum reaction by means of arsenic alone, and I think it a mistake to depend wholly on this agent. Quite frequently I see patients who have had from four to ten doses of arsphenamin intravenously at three to seven day intervals with practically no serologic change; the blood is as strongly positive as before treatment was begun, although the cutaneous lesions had totally disappeared. I agree with White, Reasoner, Craig and Nichols that certain strains of the *Spirochaeta pallida* appear to have an affinity for nerve structures, and for this reason it is essential that at least one spinal fluid test be made in every case. Before discharging a patient as cured, I think it advisable that the blood be tested at least three times during a period of twelve months in which no treatment is being administered, and, finally, a cell count, serum and gold test should be made on the spinal fluid. A thousand cases of syphilis are undertreated to one that is overtreated.

CAPT. E. J. TROW, Toronto: I have found that the intensive treatment is the best and most effective. As far as the Army is concerned, the principle there is to give ten injections in the course of two months, and as the need of men is so urgent we have turned them loose regardless of their Wassermann reaction and let them take their chance at the front. Of course, there are exceptions to that rule and some cases are retained much longer. My experience in the clinic has been that arsphenamin long continued ultimately does have some effect on the Wassermann reaction. In Toronto we have been determining the effect of treatment on the Wassermann reaction by using seven tubes and noting the effect of the drug on all dilutions, but particularly the weaker ones. In nearly every case we see some result almost immediately in the higher dilutions, whereas in the ordinary Wassermann we see no result for a long time.

DR. FRED WISE, New York: In Dr. Heidingsfeld's title he means the long-continued treatment of syphilis, but not the intensive treatment used in the meaning of the term which Pollitzer and others have used. Pollitzer uses three or four injections on three or four successive days in all favorable cases. He has had no ill results from this practice in the past three years. His dosage is 0.1 gm. to thirty pounds of body weight. On several occasions I have had an opportunity to take over Dr. Pollitzer's practice and gave the same treatment and had no ill results. I have given three successive

doses on three successive days at intervals of a week. The number of courses varied. The chief point I wish to bring out is the use of the word intensive.

Why results in Cincinnati should differ so much from those in New York is difficult to understand. Dr. Heidingsfeld's observations are dependable, but his paper should be analyzed and scrutinized closely in order to discuss it properly. It is difficult to get its full import by hearing it read.

DR. JOSEPH ZEISLER, Chicago: I want to call your attention to the great change which has taken place since the new treatment was introduced in 1910. At first all injections were administered subcutaneously or intramuscularly. The severe pain and great inconvenience connected with it made us discard this form of treatment soon; but we must realize that it meant a much more lasting effect on account of the slow absorption. Since we have adopted almost exclusively the intravenous treatment things have changed very much. Intravenous injection means rapid absorption and also rapid elimination, and under this new style we have been forced to adopt a more intensive treatment. Two years ago Dr. Pollitzer presented his ideas in Washington, and since then I have frequently carried out his plan. In every fresh case we give three injections on three successive days, and such treatment, I think, very frequently means an abortion of the disease; but no sane and safe practitioner will rely on the hope of accomplishing abortion by three injections. We continue by mercurial treatment and later on repeat the arsphenamin treatment. The chief point, however, is the individualization in every case. I must join with Dr. Fordyce in his gentle criticism of Dr. Heidingsfeld's paper, that he has not stated with sufficient clearness the nature of the cases on which he bases his results.

DR. BERNHARD ERDMAN, Indianapolis: I would like to speak of a very interesting fact, as Dr. Fordyce stated that they were having some difficulty with jaundice following arsphenamin injection. I recently saw an individual who has had his infection for fifteen years, but with no clinical evidence of syphilis. The Wassermann test, made after Dr. Fordyce's recommendation, gave a sharp positive reaction. I did not see the patient again for three months, when he came in, saying that he felt well but was still impressed with the fact that he should have some treatment. I went over the man as carefully as possible. There was no examination of the eye grounds, but the urine was negative. That afternoon he was given 0.9 gm. of the novarsenobenzol brand of arsphenamin in 10 c.c. of water. This was on Saturday afternoon. About 10 o'clock Sunday morning they telephoned to me that the patient had a restless night and was hiccuping. The man weighed about 230 pounds. This hiccuping began within less than twenty-four hours after the injection. In spite of everything I could do, and I followed the suggestions of other men who were called to see the man, the hiccuping persisted for fourteen days. During this interval the patient received chloretone, cocain, musk, opiates and antispasmodics without any relief at all. The renal excretion was cut down to 12 ounces in twenty-four hours; the urine contained albumin, casts and some red cells. He was taken to the hospital and given common salt by proctoclysis as well as tap water with glucose. He gradually recovered with a loss in weight of 40 pounds. I sometimes think that perhaps we make a mistake in giving such large doses before trying out the tolerance of the patient

DR. ARTHUR W. STILLIANS, Chicago: I did not hear any mention of mercury in connection with the arsphenamin treatment and would like to be further informed on that point. There is a great difference in the intermittent use of mercury and the intermittent use of arsphenamin. The intermittent use of mercury is a well-established treatment that has seldom given us the experience of nervous recurrence. In my opinion, and I think it is the opinion of many men, the intermittent use of arsphenamin, the giving of a single dose with a considerable intermission, has resulted in a largely increased number of nervous recurrences. That should be borne in mind in connection with this treatment.

DR. WALTER J. HEIMANN, New York: I think throughout this entire discussion and in the conception of the paper we are suffering from a lack of definiteness in terms. We have talked about intensive treatment, but the paper deals with sustained treatment. Dr. Fordyce calls attention to the fact that the paper does not point out in what stage Dr. Heidingsfeld got his results. I think in this connection there has been a hiatus in the paper which is otherwise plausible. The results reported by the author are remarkable, considering that the evidence of the world negates them.

Spirochetes may acquire a tolerance not only to arsenic but to any other drug. This fact was observed clinically many years ago in connection with mercury therapy, when we began to give interrupted instead of continuous treatment. Thus there is nothing new in learning that spirochetes become arsenic fast as they become mercury fast.

By intensive treatment is meant that in the early stages of the disease we give antispecific remedies massively and abundantly with the idea of abortion. Late syphilis cannot be aborted. We know that one injection of arsphenamin does not and cannot cure syphilis, either in its active or latent stages. So we have to fall back on our own experience to contradict Dr. Heidingsfeld's findings. We find patients who have had two injections several years ago still with clinical and serologic manifestations of syphilis. Neither do I agree with Dr. Sutton, who makes the choice, between arsphenamin and mercury, that one is better than the other. We do not treat syphilis with one drug, but with all the medicaments at our disposal. We do not adhere to a thesis, but use judgment. In concluding the discussion I wish Dr. Heidingsfeld would bring out more definitely what he meant by "intensive," whether there is anything new in his administration of mercury or iodid, whether he has noticed any difference in the early and late syphilis, and whether he has made controls not only with the blood Wassermann, but with the spinal fluid.

DR. HENRY R. VARNEY, Detroit: Dr. Heimann has summed things up very well, and while we have all changed our treatment of syphilis since arsphenamin has come to us, we are still free and open minded in regard to further changes. I have difficulty in getting patients to take enough treatment. I believe a large percentage are undertreated rather than overtreated. In discussing intensive treatment I believe we are at some variance regarding intensity. I would not like to rely on one dose of arsphenamin in primary syphilis. I think we should agree on one treatment for this stage. The early days of the initial lesion is the most important period in the treatment of syphilis, and in this we are agreed. Later on in the disease when patients show other manifestations of structure involvement the personal equation enters into the care and treatment of the disease. We see patients with syphilis who were in the Civil War and have never had any syphilitic treatment. I saw one such patient recently who said to me, "Why take treatment even if I have syphilis? I am perfectly well at 70," conveying the clinical evidence that many patients with syphilis live to an advanced age in average health without any syphilitic treatment.

Periods of rest are almost as important as periods of treatment. Change in the form of medication following a period of rest is productive of a more prompt result than a return to the same medication administered in the same manner. Alternating from arsphenamin to mercury and from mercury to arsphenamin is more beneficial than prolonged medication with only one drug.

It is extremely important to keep in mind that the first attack on the disease, whether it be arsphenamin or mercury, is the golden opportunity which comes to the physician and patient but once. The same effect is never produced by the second attack or medication. We recall the effect of our first cocktail or our first cigar, which has never been duplicated by the great number that followed. Therefore, the physician who has the opportunity to administer the first medication to the syphilitic has an opportunity for the control of that disease no other will have, it matters not the form of medication or the period of time elapsing between treatments. I, therefore, am a firm believer in the vigorous administration of the initial treatment, whether it be in the initial stages of the disease or in its later manifestations.

DR. M. L. HEIDINGSFELD, Cincinnati: Inasmuch as the views herewith set forth are at variance with those of generally

accepted practice, I anticipated much skepticism and possibly harsh criticism. What is herewith set forth is either correct or incorrect. If correct, the sooner it is known the better. The last word in regard to syphilitic therapy has not been said, and there is still much to be said, pro and con, before a definite decision will be reached. The chief criticism which has been offered is that the investigation does not go into sufficient detail, that it is not definitely stated at what stage each given case was treated. I feel assured that the work has been carried out in sufficient detail, and with sufficient personal scrutiny to make the results speak for themselves. To tabulate and correlate 1,133 cases of syphilis out of a dermatologic practice covering eight years, carefully enumerating serologic examinations, arsphenamin administrations, clinical progress or lack of progress and the ultimate results, is a sufficiently stupendous undertaking in and of itself without the addition of unnecessary and unimportant detail. In my syphilitic studies I have always felt that cases in private practice are the only ones dependable for investigation purposes. My work will bear the closest scrutiny. I, also, as well as Dr. Fordyce, have noted relapses of a malignant nature in dispensary and hospital practice, not only with one administration, but with many administrations of arsphenamin. These are the individuals who drink and dissipate and who by their personal conduct and excesses invite the worst of results in spite of every form of personal attention. Possibly I have been unfortunate in the caption of the paper. What the paper intends to set forth is the deleterious and untoward results from long sustained arsphenamin treatment. In other words, the system probably acquires tolerance for frequently repeated arsphenamin, the same as has been demonstrated for mercurials and other antispecific remedies, and that this tolerance is lost if the remedy is not repeated within an interval of at least four to six months. I can see excellent reasons for giving intense arsphenamin treatment, namely, two or three full doses within an interval of five to seven days, as advocated by Pollitzer, before an immunity has had time to establish itself. Theoretically, such a method of treatment would come more nearly fulfilling Erlich's idea of a "dosis sterilisans magna." Whether or not treatment of this kind will give better, indifferent or more unfavorable clinical results, time and a long series of carefully observed cases alone will tell. I contend, however, that definite judgment must be attended by study and observation of cases as outlined by this paper. I do not believe in the administration of a fractional dosage of arsphenamin. Fractional dosage merely helps to establish an early immunity. If arsphenamin is administered, it should be in full dosage, 6 decigrams, commensurate to 160 or 180 pounds body weight. I have not spoken about spinal puncture, inasmuch as I did not want to inject that greatly mooted feature into the paper. I do not practice it as a routine measure for reasons which I do not care at this moment to discuss. The formula for decoction Zittman presented in this paper was carefully copied from a German pharmacopeia with the assistance of a careful, painstaking pharmacist. There is no mercury in that formula. I do not doubt but what there are many modifications of this formula, some with mercury, some without.

My general impression for the past two or three years has been that interrupted administrations of arsphenamin, guided by careful serologic examinations, gave me uniformly good clinical results, far better than in cases that had been treated otherwise. When the results were tabulated, they were so much better than I had anticipated as to cause me some personal embarrassment. I searched for a possible error, and found none. I leave the results to speak for themselves.

Death Rate Increases.—The death rate for Philadelphia for 1917 was 17.0243 as compared with 16.1572 for 1916. The weather conditions, lack of coal and nourishing food helped to advance the total, and although the city was visited by no epidemic of infantile paralysis, the death rate among infants and very young children was higher than in 1916. The total number of deaths in 1917 were 29,546, as compared with 27,621 in 1916. This high total has occurred in spite of the maintenance of a large corps of city nurses and physicians in congested sections.

TREATMENT OF ACUTE POLIOMYELITIS WITH IMMUNE HORSE SERUM

FURTHER STUDIES *

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The demonstration that the somewhat peculiar streptococcus, isolated in poliomyelitis from time to time by various observers, has elective affinity for the central nervous system of young rabbits and guinea-pigs, producing symptoms and lesions resembling poliomyelitis in man,[1] indicated that this organism was no longer to be regarded as a mere secondary invader, but of real etiologic importance.

The possibility of developing a curative serum for poliomyelitis with this organism was first suggested in the experiments by Rosenow, Towne and Wheeler,[2] in which monkeys were protected against injections of virulent virus, and experiments in the immunization of horses were instituted. These fundamental observations stimulated a reinvestigation of the etiology of poliomyelitis and of its treatment.[3]

The serum from a horse (Horse 1), injected with freshly isolated strains from experimental poliomyelitis in monkeys, was found to protect monkeys against inoculation of virus[4] (corroborated recently by Nuzum and Willy[5]), to have definite curative effects in monkeys after the onset of paralysis, and apparently a powerful curative action in poliomyelitis in man. In a preliminary report[6] on the treatment of forty-four cases, these statements appear:

> All of the sixteen patients treated before paralysis had begun recovered without paralysis. . . . The apparent good effects from the injection of serum are often striking. The headache, nervousness, restlessness and tremor often disappear promptly. The temperature and pulse rate are lowered. A beginning paralysis often disappears in an astonishingly short time. A rapidly progressing paralysis is often arrested and improvement is unusually rapid. The postparalytic pains do not appear or are comparatively mild.

Nuzum and Willy[7] have since reported similar apparently striking benefits in a large series of cases following the use of an immune horse serum prepared in a similar manner.

The further results given in the detailed report[8] on the treatment of fifty-eight cases indicates that the

* From the Mayo Foundation

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: The Etiology of Epidemic Poliomyelitis, Preliminary Note, THE JOURNAL A. M. A., Oct. 21, 1916, pp. 1202-1205. Rosenow, E. C.; Towne, E. B., and von Hess, C. L.: The Elective Localization of Streptococci from Epidemic Poliomyelitis, Jour. Infect. Dis., 1918, **22**, 313-344.

2. Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: Observations on Immunity of Monkeys to Experimental Poliomyelitis, THE JOURNAL A. M. A., Jan. 27, 1917, pp. 280-282.

3. The reader is referred to a series of papers by the writer and his associates that appeared in the April number of the Journal of Infectious Diseases, 1918, **22**, 281-426. In these papers, contributions by other observers are discussed.

4. Rosenow, E. C.: The Production of an Antipoliomyelitis Serum in Horses, THE JOURNAL A. M. A., July 28, 1917, pp. 261-265.

5. Nuzum, J. W., and Willy, R. G.: Further Studies of an Antipoliomyelitic Serum: Its Protective and Curative Properties in Experimental Poliomyelitis in Monkeys, Jour. Infect. Dis., 1918, **22**, 258-270.

6. Rosenow, E. C.: The Treatment of Epidemic Poliomyelitis with Immune Horse Serum: Preliminary Report, THE JOURNAL A. M. A., Sept. 29, 1917, pp. 1074-1075.

7. Nuzum, J. W., and Willy, R. G.: Specific Serum Therapy of Epidemic Poliomyelitis, THE JOURNAL A. M. A., Oct. 13, 1917, pp. 1247-1254.

8. Rosenow, E. C.: Report on the Treatment of Fifty-Eight Cases of Epidemic Poliomyelitis with Immune Horse Serum, Jour. Infect. Dis., 1918, **22**, 379-426.

serum has definite curative action in epidemic poliomyelitis. The series included one case of sporadic poliomyelitis in which equally good effects were noted.

It is my purpose to report in detail in this paper the results obtained in a number of cases of sporadic poliomyelitis, to record experiments on the use of the serum in experimental poliomyelitis in the rabbit, and to emphasize the importance of early diagnosis of this disease.

The serum used in the cases here reported, as in the series of cases of epidemic poliomyelitis, was injected intravenously and not intraspinally, as it had been found that intravenous injections were necessary to protect monkeys against intracerebral inoculations of virus.[4] Intraspinal injections of horse serum, as has been shown by Flexner and Amoss,[9] increase markedly the susceptibility of monkeys to poliomyelitis, so much so as to render them susceptible to intravenous injections of virus. The largely negative results, as reported by Amoss and Eberson,[10] on the therapeutic power of my serum in monkeys, would appear to be due to the fact that they gave exclusively intraspinal injections instead of intravenous injections. To facilitate slow injection (1 c.c. per minute) the serum was diluted with an equal quantity of salt solution, but was not activated with guinea-pig complement.

REPORT OF CASES

CASES IN WHICH THERE WAS SLIGHT PARALYSIS AT THE TIME OF SERUM TREATMENT

Case 1 (1042).—E. T. P., a boy, aged 19 months, a patient of Dr. C. T. Granger, Rochester, Minn., seen, Dec. 23, 1917, had been fussy for a few days, owing, it was believed, to teething, since two teeth were in the process of eruption. For two weeks the patient's two sisters had had colds, running of the nose and cough, but they were apparently free from fever. During the previous night the child had been restless; he slept at intervals, but frequently awakened. There was no noticeable fever. He had had two loose, foul-smelling stools the day previously, but there was no vomiting. During the night a weakness of the muscles of the neck was noticed, the child being scarcely able to hold up his head. At 10 a. m. he was found lying on a couch with the head retracted, eyes partly open and with frequent twitchings of the right arm and legs. On being aroused he showed a decided mental apathy, marked tremor and ataxia, and rigidity at the neck. The face was symmetrical. The tongue protruded slightly to the left. He was able to stand, and to hold the head erect, but was unable to get up unassisted, and in sitting down repeatedly fell to the floor quite limp. The left knee jerk was normal, the right was exaggerated, and the reflexes of the upper extremities were normal. The temperature was 100.4. When a spinal puncture was made, the weakness of the legs and muscles of the back became very noticeable. The spinal fluid spurted, and 10 c.c. were withdrawn; but owing to the presence of traumatic blood, a cell count and globulin test could not be made. A differential cell count, made of a stained specimen of the sediment, showed 70 per cent. mononuclear cells. Ten c.c. of serum were injected. The child slept quietly for three hours after the serum was given, and with less twitching of the muscles. At 5 p. m. the temperature was 100. He looked brighter, sat up, and stood without tremor. Retraction and rigidity of the neck was less marked, but still evident. He was able to get up from a lying position unassisted, and walked readily, but was still somewhat weak and unsteady. The tongue protruded in the median line. There was no weakness of the arms. The knee jerks had become normal and equal.

December 24, 1 p. m., the child looked brighter, and tremor and tremulousness had disappeared. He had slept well during the night. He sat up unassisted, and stood and walked without support, but there was still some weakness of the muscles of the back, noticeable when he was sitting down. The temperature was normal, the face symmetrical, the tongue protruded in the median line, and the retraction and rigidity of the neck were absent. The knee jerks were normal. Eight c.c. of serum were injected.

December 25, no weakness could be made out. The child appeared well. Recovery was complete.

Case 2 (2008).—L. R. B., a boy, aged 2 years, a patient of Dr. G. T. Joyce, Rochester, Minn., April 3, 1918, at about 2 o'clock in the afternoon, was acting peculiarly; he was fussy, and it was discovered that he was unable to walk on account of weakness in the legs. He had had diarrhea the day previously, with four or five watery stools of extremely foul odor. There was no apparent fever, but a cough developed during the morning, as a result, presumably, of exposure to whooping cough three weeks and ten days previously. At 9:30 p. m. the child was entirely unable to bear weight on the legs, and in repeated efforts to do so the legs gave way at the knees; the left leg was weaker than the right. There was no swelling of the joints, and no complaint of pain. The child was well nourished. The left knee jerk was barely obtainable, the right only slightly diminished. The spinal fluid was under increased pressure, was clear, and 6 c.c. were withdrawn. The cell count was 21, the globulin test was strongly positive, flocculation occurring almost immediately. Twelve c.c. of serum were injected.

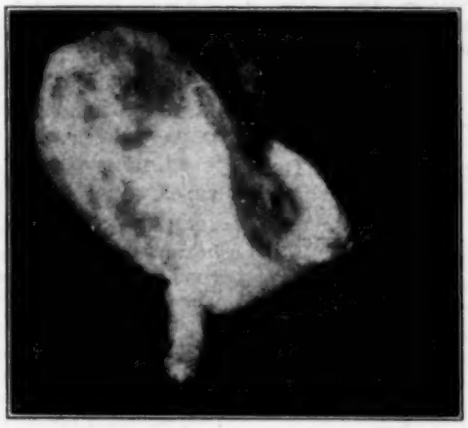

Fig. 1.—Rabbit 1477, showing marked weakness of fore extremities forty-eight hours after the intravenous injection of the culture from the tonsil in Case 1 after one animal passage.

April 4, 8:30 a. m., after the child had slept all night without restlessness, turning over in bed normally a number of times during the night, there was no tremor, he looked well and could walk without support, but some weakness of the legs was still evident. Knee jerks were normal. The injection of serum was repeated. At 9 p. m. the child walked readily without assistance, and without apparent weakness. The reflexes were normal, and he appeared well in every respect. Recovery was complete.

CASE SHOWING ADVANCED PROGRESSING PARALYSIS AT THE TIME OF SERUM TREATMENT

Case 3 (1078).—C. A., a boy, aged 2 years, a patient of Dr. G. T. Joyce, Rochester, Minn., Feb. 24, 1918, was weak, poorly nourished, pale, and had had several attacks of severe anemia. He had been fussy, cross, feverish and irritable for two days. He had not walked normally and had fallen easily, once from the doorstep, the day previously. He vomited repeatedly during the morning and was feverish, but had no diarrhea. Mumps was epidemic in the neighborhood; the mother had it three weeks previously, and the fever and illness of the child were thought to be due to mumps because there was a swelling in the region of the left parotid. At 6 o'clock he had severe convulsive seizures with marked spasms of the right side of the face, the right eye and the right arm, but also spasms and twitchings of the muscles of the left side. The right arm became completely helpless within one hour. At 10:30 p. m. there was moderate swelling in the region of the left parotid, a complete flaccid paralysis of the right arm, which dropped limply to the side when lifted, and inability to close the right

9. Flexner, Simon, and Amoss, H. L.: The Relation of the Meninges and Choroid Plexus to Poliomyelitic Infection, Jour. Exper. Med., 1917, **25**, 525-531.

10. Amoss, H. L., and Eberson, F.: Therapeutic Experience with Rosenow's Poliomyelitic Serum, Jour Exper. Med., 1918, **27**, 309-317.

eye. The right side of the face was drawn markedly, especially when the child cried. There was weakness of the muscles of the right side of the neck, the head tending to fall forward and to the left. He could just stand, but was unable to get up alone. There was moderate retraction and rigidity of the neck, and weakness of the right leg, and the right foot was rotated outward. Attempts at flexion of the head caused severe pain. The knee jerks were exaggerated; the reflexes in the right forearm were barely obtainable, and the triceps and biceps reflexes were absent. The temperature was 97, and the pulse was rapid. The child took no interest in his surroundings and cried apathetically when handled; but as soon as left alone he went back into a semicomatose sleep. The spinal fluid was under increased pressure. Eight c.c. of slightly turbid fluid were withdrawn. The cell count was 550, and the globulin test strongly positive. The Wassermann test of the spinal fluid proved negative. Twelve c.c. of serum were injected.

February, 25, 9 a. m., after a quiet night, the child closed the right eye readily and appeared brighter, but complained of pain in the left foot. The face was less drawn. The reflexes were stronger and the biceps and triceps reflexes were easily obtainable. The strength in the right arm was decidedly greater; he could lift it from the bed in turning over, and offered decided resistance when it was moved. Ten c.c. of serum were injected. At 8 p. m. the temperature was 98. The child had been restless for several hours after the serum was given, moving the right arm markedly four times during the afternoon. He slept naturally with face symmetrical, and with both eyes closed. The swelling of the left parotid was more marked, he appeared brighter, and took an interest in his surroundings. The face was less drawn when he cried and the head was held erect. There was no rigidity of the neck, the arm and forearm were moved, and the fingers were flexed quite vigorously on repeated tests. The knee jerks, and the reflexes of the right arm and forearm were normal. Ten c.c. of serum were given.

Fig. 2.—Rabbit shown in Figure 1 five hours after serum treatment.

February 26, 9 a. m., it was reported that the child had slept well, and eaten breakfast with relish. The swelling in the left cheek had diminished, the face was symmetrical when at rest and only slightly asymmetrical when he cried. The right arm was moved with considerable power. Ten c.c. of serum were injected. At 8 p. m. the right arm was decidedly stronger.

February 27, 8 a. m., the condition was about the same as the night before. At 8 p. m., the child was about the same, but had been more fussy and cross during the afternoon.

February 28, 9 a. m., there was no improvement in the condition. At 9 p. m. the condition had not improved. The child complained of pain in the right leg during the afternoon, and was unable to walk unassisted. Ten c.c. of serum were given.

March 1, 9 a. m., the child was able to walk and get up on his feet unassisted; he appeared brighter, the face was less drawn, the eyes closed completely, and power in the right arm was decidedly greater. Ten c.c. of serum were given. At 8 p. m. there was decided improvement in the power of the right arm; the reflexes were normal.

March 2, 8 a. m., the child walked without apparent weakness in the legs. The face was symmetrical. The strength in the shoulder group of muscles on the right side was decidedly improved; the reflexes were normal.

March 10, 8 p. m., the child appeared well. The power in the right arm was quite marked; he grasped fingers with vigor, but used the hand little. He walked without limp. The face was symmetrical, with no swelling of the left parotid gland. He broke his right leg, which was placed in a cast, and further observations were temporarily interfered with.

June 3, the child looked puny and poorly nourished. The face was symmetrical. He moved the right arm in every direction, but the extensors of the fingers were still weak. There was slight dragging of the right foot, but he walked without apparent weakness in the leg or back. The reflexes were normal.

CASE SHOWING MARKED PARALYSIS TEN DAYS AFTER ONSET

CASE 4 (1024).—N. F., a boy, aged 2 years, a patient of Dr. Morris Bachman, Lake Park, Iowa, and of the Mayo Clinic, had been taken sick two weeks previously with a high fever which lasted four days. Nov. 3, 1917, there was a slight soreness of the throat, and stiffness of the neck; there was no vomiting or diarrhea, but marked constipation. On the fourth day the child developed marked weakness in the muscles of the legs and back, and on the seventh day, weakness of the right arm. On examination pus was expressed from the left tonsil, which was larger than the right, and an enlarged peritonsillar gland was found on the left side, but none on the right. The child showed a marked disinclination to walk, and complained of pains in the legs. He was still very restless and irritable, and awakened at night, calling out in his sleep. Power in the legs had increased definitely, but there was marked weakness in the right leg, the right arm and the muscles of the back. The right knee jerk was barely obtainable and the left was normal. The child could move the right arm in all directions, but with impaired power. At 10 a. m. a spinal puncture revealed spinal fluid under moderate pressure, and 5 c.c. were withdrawn. The cell count was 16, the globulin test markedly positive. Twelve c.c. of serum were injected.

November 4, he had slept for five hours without waking, following the injection of serum, but had a restless night.

November 5, he slept soundly through the night without waking, for the first time since he became ill. He looked brighter and was much less fussy, the disinclination to walk had disappeared, and he no longer complained of pain in the right leg. He was able to roll over in bed and with the right foot could kick a hand held above the bed, neither of which he could do the day previously.

December 18, the child was perfectly well, walking and running without recognizable limp. The reflexes were normal.

CASE OF DOUBTFUL DIAGNOSIS

CASE 5 (1056).—O. I. J., a girl, aged 2 years, a patient of Dr. George Stevens, Byron, Minn., ten days previously had gone to bed perfectly well, and the following morning a slight limp was noted in the right leg, which persisted. Jan. 15, 1918, there was pain in the region of the right knee and the outer aspect of the right leg was complained of. The temperature was 100. A cough had developed, due to a cold; the mother also had a cold. There was a doubtful tendency to toedrop on the right side. The child appeared quite well. The reflexes were normal; there were no twitchings, retraction or rigidity of the neck and no pain in the back on flexion. The tonsils were large, and the crypts were filled with numerous quite hard brownish-gray plugs which could be easily expressed. There were no palpable glands in the neck. Spinal puncture revealed fluid under normal pressure, and 4 c.c. of clear fluid were withdrawn which was negative for cells and globulin test. Twelve and five-tenths c.c. of serum were injected.

January 16, there was no change in the condition.

January 18, the child limped a little. Recovery was complete.

CASE OF TUBERCULOUS MENINGITIS

CASE 6 (1095).—M. O., a girl, aged 3 years, a patient of Dr. G. O. Fortney, Zumbrota, Minn., and of the Mayo Clinic, seen, March 17, 1918, had complained of pain in the right hip, in the fall of 1917, especially at night, and soon developed a limp and pain on walking, which gradually progressed until February, 1918, when she was placed in a cast. One week previously she complained of constant headache, pain in the back, and photophobia. There was loss of appetite and vomiting of everything taken. The morning temperature was 101; the afternoon temperature was 99, and the pulse was slow.

March 19, the spinal fluid was clear, the cell count 178, and the globulin test positive.

March 20, cultures from the spinal fluid in glucose broth showed pure culture of short-chained streptococcus. The patient was stuporous and apathetic, and was unable to open her eyes more than 1 cm., the upper lids dropping, the right more than the left. There was undoubted weakness in the muscles of the right side of the face, manifested as the patient showed her teeth. There was no nystagmus. The tongue was tremulous, but protruded, in the median line. The triceps and biceps reflexes on both sides were absent. Knee jerks were present. There was decided rigidity of the neck. Grasping power in both hands was slight, but she could move her arms in all directions. At 2 p. m., owing to the finding of the streptococcus in the spinal fluid, and the beginning of paralysis in the muscles of the face and upper extremities, 25 c.c. of serum were injected intravenously. At 3:20 p. m. she had a decided chill, the pulse was 120 and there were 2 degrees of rise in temperature, but no other change.

March 21, the general condition remained about the same; the left eyelid drooped decidedly, and the weakness in the arms had grown more marked. The blood agar plate of the culture obtained from the spinal fluid showed countless numbers of indifferent colonies of streptococci, which were not agglutinated by poliomyelitis serum. A second culture of the spinal fluid proved negative.

March 22, the patient was stuporous. There was ptosis of the left eyelid; both pupils were dilated, and did not react to light. She did not move the right arm, and still evinced dislike to being touched or examined. The rigidity of the neck was more marked, and there was slight opisthotonos. Death occurred at 10:25 p. m. The findings at necropsy were typical of tuberculous meningitis.

Fig. 3.—Rabbit 1481, showing marked weakness of all extremities nine days after the first and two days after the second injection of the same strain after two animal passages.

SUMMARY OF CASES

The two patients (Cases 1 and 2) that were treated before marked paralysis had occurred showed the most striking benefit, as did those in the epidemic form of the disease, both recovering completely within forty-eight hours. The result in the child with mumps (Case 3), who was markedly under size, anemic and poorly nourished, who had convulsions followed by an extensive weakness on the right side of the body, and complete paralysis of the right arm, and a high cell count in the spinal fluid, was less striking, but unmistakable improvement followed each injection. The patient (Case 4) in whom the serum was given ten days after the onset of paralysis, likewise appeared benefited. In Case 5, in which the diagnosis was very doubtful, and in Case 6, which proved to be tuberculous meningitis, the results, as was to be expected, were indifferent.

The primary culture from the pus from the tonsil of Case 1 was injected into one rabbit, which died with marked invasion of the central nervous system, and from which a pure culture of the characteristic streptococcus was isolated.

In the earlier work on elective localization it was the rule to inject the streptococcus from poliomyelitis soon after its isolation. In order to determine whether the peculiar localizing power could be maintained through many subcultures, and thus rule out all possibility of carrying over "virus," subcultures in glucose brain broth were made from every three to eight hours, and the nineteenth culture generation was injected intravenously in rabbits. All but three of ten rabbits developed paralysis or showed elective localization.

The symptoms in the rabbit following injection of these strains are usually marked and progress rapidly, the animals dying in convulsions or from paralysis of the muscles of respiration. The amount of infiltration in the nervous system is mild as compared with that in man and in the monkey.

These conditions were thought favorable to test the efficacy of the serum, and a series of rabbits which showed paralysis were treated with it. The rabbits seemingly derived marked benefit. Injections of normal horse serum had no apparent effect.

REPORTS OF TWO ILLUSTRATIVE EXPERIMENTS

EXPERIMENT 1. — Rabbit 1477, weighing 1,009 gm. was injected intravenously, Jan. 8, 1918, with 7 c.c. of glucose brain broth culture, in the nineteenth subculture after one animal passage.

January 10, 3 p. m., the animal was found in the cage apparently quite well, but there was continuous fine tremor of the muscles of the whole body, frequently twitching and mild clonic spasms of the muscles of the neck. It was extremely hyperesthetic, and the head was slightly retracted at times. When it was placed on a smooth surface, undoubted weakness of the anterior extremities was noted, particularly in the adductors (Fig. 1). Respirations were rapid, and there was marked salivation. The temperature was 104.8. At 3:20 p. m., the weakness in the anterior extremities was more marked; the tremor and spasms were less marked in the anterior extremities, but extended to the hind extremities, and the paralysis was rapidly increasing. The animal was entirely unable to bear its weight on the front extremities and had difficulty in getting its hind legs under the body. Tremor was markedly increased when it was lifted from the cage. At 3:45 p. m., 1 c.c. of serum from Horse 1, with an equal quantity of salt solution, was injected intravenously. At 4:20 p. m., there was less weakness, and tremor and spasms were limited to the muscles of the head. The front legs were undoubtedly stronger and did not spread out as much in walking on a smooth surface. Salivation was less marked. The temperature was 105. The injection of serum was repeated. At 4:45 p. m., the tremor was limited to the muscles of the jaw and neck; the fore extremities were stronger, and there was much less tremor when it was lifted from the basket. The fore legs spread slightly; the weakness in the hind legs was less marked. Salivation was absent. At 5:15 p. m., the picture had entirely changed; the animal was eating carrot and walked without difficulty and without evidence of weakness. Tremor was entirely absent, and the respirations were diminished. At 6 p. m., it appeared quite well. Salivation and tremor were entirely absent. There was slight twitching of the muscles of

the front legs when it was lifted from the basket. It walked normally on a smooth surface. The respirations were nearly normal. The temperature was 103.6. At 7 p. m., it appeared well, the respirations were normal, and salivation and tremor were absent even when it was lifted from the basket. It walked without manifest weakness. There was no retraction of the head. The temperature was 101.8. At 7:30 p. m., it appeared well, and jumped from a platform 2 feet high without evidence of weakness in the extremities while a moving picture was being taken. At 9 p. m., the animal ate carrot with relish (Fig. 2) and jumped out of the basket and ran about on the floor normally, without tremor. There was no hyperesthesia.

January 11, 6:45 a. m., the animal had escaped from the basket and was found running about on the floor apparently perfectly well with no sign of weakness anywhere. It was hungry and ate carrot ravenously. It was observed all day and appeared well, with no sign of return of symptoms.

January 12, 7:30 a. m., the animal appeared well. At 12 m. a decided tremor of the head and fore extremities was noted when it was lifted from the basket, but no weakness of the extremities was evident. At 2:20 p. m., the tremor had become decidedly more marked. The serum injection was repeated. At 6 p. m., it appeared well; there was no tremor on handling, and no weakness. At 9 p. m., the condition was unchanged.

January 19, the animal was perfectly well and active, with no sign of weakness anywhere. It remained perfectly well until May 2, when it died from snuffles, which was epidemic in the laboratory at that time.

EXPERIMENT 2. — Rabbit 1481, weighing 1,060 gm., was injected, Jan. 11, 1918, the same as Rabbit 1477.

January 12, the animal appeared well.

January 17, the animal appeared well and was injected intravenously with a six-hour culture in glucose brain broth of the same strain after two animal passages.

January 18, there was undoubted weakness of the left fore leg, which went into spasm in the extended position when the animal was lifted by the ears. Both forelegs spread out widely when it was placed on a smooth surface, the left more marked than the right. There was no tremor.

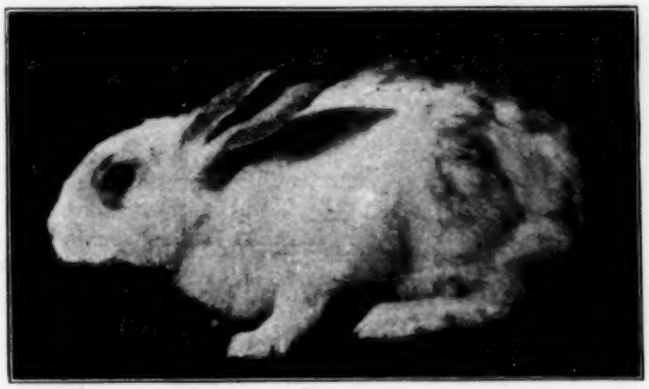

Fig. 4.—Rabbit shown in Figure 3 fourteen hours after serum treatment.

January 19, there was marked extensor and adductor weakness of the forelegs, especially the left, and slight tremor of the anterior part of the body but no retraction of the head.

January 20, 11 a. m., the animal was scarcely able to extend the front paws. Both legs tended to spread out widely in an attempt to stand on a smooth surface. The anterior part of the body trembled markedly in the attempt to walk, but there was no apparent weakness in the hind legs. There was marked loss in weight. At 1 p. m., weakness was more marked in the anterior extremities. At 5:30 p. m., the condition was worse, the animal being just able to bear weight on the front extremities. There was tremor and a tendency to spasm of the hind legs, with some difficulty in maintaining balance, and evidence of weakness in the muscles of the hind extremities. At 6:30 p. m., the paralysis was rapidly growing worse, the animal was unable to get its hind legs under it after they were extended, and it was entirely unable to bear weight on the front or hind extremities when on a smooth surface. The respirations were shallow, irregular and almost entirely abdominal. The ears were cold and drooped markedly (Fig. 3). The temperature was 100.8. One c.c. of serum of Horse 1, and 1 c.c. of salt solution were injected intravenously. After the injection the animal was placed in a cage, utterly unable to walk or stand. At 7:30 p. m., it was found in the opposite corner of the cage, 2½ feet from the place where it was left an hour previously. It stood with the chest from the floor of the cage, and was just able to walk. The temperature was 101. There was a tendency to spasm of the hind legs when it was lifted from the cage. The injection of serum was repeated. At 8 p. m., it was found hopping about in the cage, and it ate greens with relish. The respirations had become regular, and expansions of the chest had become greater. At 9 p. m., it was hopping about in the cage and ate greens and oats. On being placed on a smooth surface it was able to stand erect without the paws slipping from under it, and it walked about with little weakness except the extensor weakness of the left paw. The power of the muscles in the ears had returned. The respirations were normal, and there was no tremor. The temperature was 102. The injection of serum was repeated.

January 21, 7:15 a. m., it appeared well, ate carrot with a relish, and hopped about the cage quite normally. When it was placed on a smooth surface, no weakness could be demonstrated (Fig. 4). There was sufficient strength to raise the weight of the body in its attempts to get on the top of a microscope case. It ate normally, its ears no longer drooped, the respirations were normal, and the temperature was 101. The animal appeared perfectly well until January 25, when it was found dead. There were no lesions of the central nervous system, cultures of the brain and cord were negative, and the liver showed marked coccidiosis.

CONCLUSIONS

The results in acute sporadic poliomyelitis, as in the epidemic form of the disease, and in experimental poliomyelitis in the rabbit, are so strikingly favorable as to leave little doubt regarding the value of this treatment. Therefore, the importance of recognizing poliomyelitis early is evident, as it never has been heretofore.

It cannot be too strongly emphasized that this disease has a quite characteristic syndrome, as has been emphasized by Draper,[11] Peabody[12] and others, which should lead to its tentative diagnosis, and to the immediate making of spinal puncture for conclusive diagnostic tests. If a patient has symptoms which suggest involvement of the central nervous system, and shows an increased amount of spinal fluid, an increased number of cells with mononuclears predominating, and a positive globulin test, the serum should be administered immediately. If further study should prove the symptoms due to some cause other than poliomyelitis, no harm will have been done, while if the treatment is delayed, irreparable harm may occur.

It is realized that a large number of patients must be treated before final conclusions can be drawn. Since the sporadic form appears also to yield to the treatment, there should be a supply of the serum in the hands of many.

A large amount of serum, believed to be as effective as that used thus far, is on hand, and will be sent gratis to any one who has an opportunity to use it, and who will furnish records of cases.

11. Draper, George: Acute Poliomyelitis, Philadelphia, P. Blakiston's Son & Co., 1917.

12. Peabody, F. W.: A Report of the Harvard Infantile Paralysis Commission on the Diagnosis and Treatment of Acute Cases of the Disease During 1916, Boston Med. and Surg. Jour., 1917, **176**, 637-642.

ABSTRACT OF DISCUSSION

Dr. P. S. Roy, Washington, D. C.: I wish Dr Rosenow would tell us what change has taken place in nerve tissues which respond so quickly to treatment. It is almost analogous to the changes in polyneuritis or beriberi in pigeons. If you pour yeast vitamins down that pigeon's throat it will get well in a few hours. It is very interesting to know what change takes place in nerve cells which are completely restored to action in three hours.

Dr. E. C. Rosenow, Rochester, Minn.: There is much evidence to believe that loss of muscle power in poliomyelitis does not necessarily mean the death of the motor cells in the anterior horns. The paralysis may, in part, be the result of inhibition of physiologic function due, early, to the toxic effect of the micro-organism causing the disease, and late, to lack of oxygen or nutrition from infiltration. The fact that paralysis which starts to disappear soon after the acute attack is more prone to disappear entirely than when improvement begins late, indicates that this is true. The very prompt restoration of function which is observed following the injection of my antipoliomyelitis horse serum containing neutralizing substances is thus to be expected. In the case of the rabbit, the paralysis, and even death from respiratory failure appear to be due in many instances to inhibition of physiologic function of the ganglion cells in the anterior horns. The amount of infiltration is relatively slight, hence the immediate striking beneficial effects noted in this species following injection of the neutralizing serum.

AN OPERATION FOR STABILIZING THE FOOT AND ANKLE IN POLIOMYELITIS

A FURTHER REPORT *

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In cases of poliomyelitis with paralyzed foot muscles, the foot is usually equinus, equinovarus or valgus.

Fig. 1 (Case 1).—Right talipes equinus varus and left talipes valgus.

In the treatment of such cases, operative measures would not be considered until a long time had elapsed after the acute attack and until all remedial measures had been exhausted. There comes a time, however, when something has to be done with deformity, and when tenotomies and brace wearing are not very satisfactory. The brace wearing is never kept up very long with any degree of efficiency, and after a while parents become tired and careless and give up all mechanical treatment.

Fig. 2 (Case 1).—Patient standing on the feet after correction.

At the meeting of the American Orthopedic Association in Philadelphia, Dr. G. G. Davis impressed on us the importance of in some way getting these children into such a condition that they could walk fairly well without apparatus of any kind. It was to accomplish some such result that the operation in question was devised. It was described[1] in 1917, and again[2] in 1918. The results seem to be so satisfactory and so permanent that I shall describe the technic once more. Perhaps this is best done by reporting the first case in detail:

Case 1.—E. F., a boy, had an acute attack of poliomyelitis at 11 months of age. An operation was performed in August, 1917, when the patient was 7 years of age. Figures 1 and 2 show the right equinovarus and left valgus deformity. The position of the feet had first been corrected by tenotomies and held in such position for four weeks. On the right foot the fascia transplant operation consisted of first removing a piece of fascia lata from 2 to 2½ inches wide the whole length of the thigh. An incision was then made nearly the whole length of the leg. A second incision was made through the tough fascia which surrounds the tendons. These tendons were then dissected out and separated clear down to the annular ligament. In this case the tendons separated were the common extensor and the peroneus longus. The fascia covering the common extensor was split its whole length on the side nearest the crest of the tibia. The fascia lata was then stitched around the tendons at the lowest possible point in such a manner as to form a cuff. The dissected surface was placed next to the tendons and muscle. After this cuff of fascia was securely fastened the foot was held in an overcorrected position, while the upper end of the strip of fascia lata was firmly attached to the split tendon fascia at the upper end of the tibia or leg. Then, at the lower end, again the strip of fascia lata was split to allow for a separate cuff to be arranged around the tendon of the peroneus longus, and the upper end was thoroughly attached in the same manner as described above. Then the sides or edges of the fascia trans-

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Peckham, F. E.: Paper read before the American Orthopedic Association, May, 1917.
2. Peckham, F. E.: Rhode Island Med. Jour., 1918, **2**, 35.

plant were stitched firmly to the edges of the split tendon fascia all the way up and down the leg, and incidentally to the muscle bellies as well. Through all this time the foot was held firmly in the overcorrected position. When this part of the operation was completed the skin incision was closed with silkworm-gut.

So firm is the anchorage in such an operation that the foot remains in the corrected position without any mechanical assistance; consequently no plaster of Paris is necessary. A strip of adhesive plaster is applied, however, beginning at the top on the inside of the leg, passing down under the anterior part of the foot and up on the outside of the leg. This steadies the foot sufficiently and is all the fixation I now use. The patient is usually kept in the hospital in bed for six weeks, then sent home and asked to report in two weeks. I have applied braces for six or eight weeks while they are beginning to walk again, but I feel pretty sure that even this is unnecessary.

This operation has been useful, and to the parents very satisfactory, because their children not only walk, but are walking without braces of any kind.

249 Thayer Street.

ABSTRACT OF DISCUSSION

DR. WALTER G. STERN, Cleveland: I had an experience similar to that which Dr. Peckham has had, in doing the Gallie operation. We found that we did not get enough surface for perfect fixation. I think it is more simple to do the operation devised by Putti, that is, putting the severed tendon through a hole in the bone and sewing it firmly. With the extreme anchorage of Dr. Peckham's operation the results —as we have heard from this paper—must be quite satisfactory and permanent.

DR. FRANK E. PECKHAM, Providence, R. I.: I can only say that in doing the Gallie operation, and also the Putti, I did not get absolute anchorage. Each one has to figure out what he can do best.

Fig. 3 (Case 2).—Right foot held at right angle by muscular effort. Left foot hanging on account of paralysis.

Fig. 4 (Case 2).—Lateral view of hanging foot.

Fig. 5 (Case 2).—Patient standing on foot. This patient was operated on in August, 1917, and during the past winter went skating.

The left or valgus foot was treated as will be described in Case 2:

CASE 2.—I. M., a girl, had an attack of poliomyelitis at the age of 1 year and 3 months, and the operation was performed in August, 1917, when the patient was 8 years and 11 months of age. This was a talipes valgus in which the tibialis anticus and posticus were the paralyzed muscles. Figures 3 and 4 show how the toe drops. An operation similar to the one described in the foregoing was performed, except that the two inner tibial muscles were the ones anchored.

The correction in position is shown in Figure 5. When the mother brought the child for observation this spring she said that the little girl had been skating on it all winter. This would seem to demonstrate functional ability.

The advantage of the operation is that there is a long anchorage, nearly the whole length of the leg, from which so far there has been no giving way. These children walk without any apparatus, and practically do a heel and toe walk because with the foot held they strike on the heel. Then the remaining good muscle, whether it is the tibialis anticus or the common extensor, steadies the foot while the Achilles tendon pulls up the heel.

Workmen's Health Insurance.—The *American Labor Legislation Review* for the first quarter of 1918 summarizes the legislation enacted in 1917 providing for official studies of workmen's health insurance. Commissions were appointed in several states to report to the legislatures in 1919: in California, to report on social insurance; in Connecticut, on health insurance, old age pensions, free employment bureaus, hours of labor, minimum wage, and nine other topics relating to agriculture and business; in Illinois, on sickness and accidents of employees and their families not covered by workmen's compensation, etc.; in Massachusetts, on the alleviation of poverty due to sickness, the provision of medical care for wage earners, the health of wage earners and conditions of work, and existing insurance system; in New Hampshire, on health insurance and workmen's compensation; in New Jersey, on the operation of pension, annuity and insurance systems; in Ohio, on sickness, causes, influence of working and living conditions, etc., prevention of sickness, health insurance and old age insurance; in Pennsylvania, on sickness and accidents of employees and their families not covered by workmen's compensation loss resulting from sickness to individuals and the public, adequacy of present methods of treatment and care on meeting financial loss, influence of working conditions on health, and sickness prevention; in Wisconsin, to report on insurance against sickness and occupational disease.

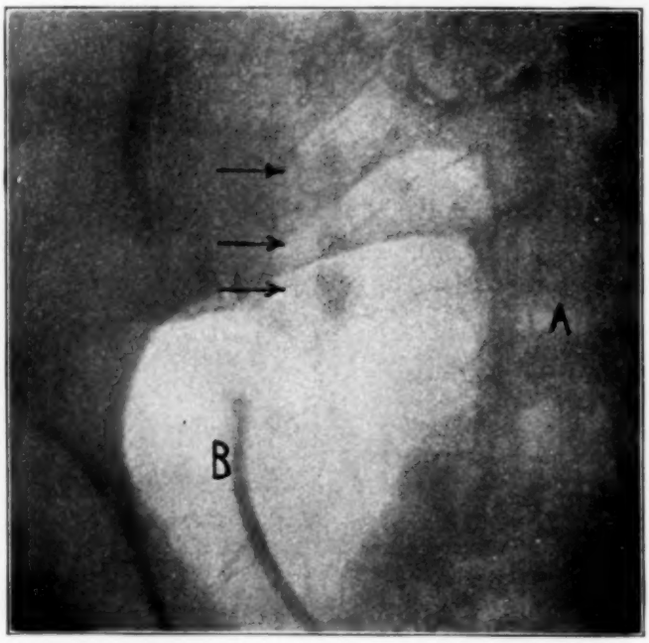
DIAGNOSIS OF URETERAL CALCULI AND TECHNIC OF REMOVAL WITHOUT OPERATION *

A. J. CROWELL, M.D.
AND
S. R. THOMPSON, M.D.
CHARLOTTE, N. C.

The purpose of this paper is to describe our technic of removing ureteral calculi without operation. The plan was mentioned in 1915 by one of us,[1] but the technic was not fully described, as a sufficient number of cases had not been treated by the method to justify us in making any special claims for it. After the lapse of three years, and after having treated thirty-one cases in this way, we are now prepared to assert that practically every recently impacted ureteral calculus can be removed by this plan if treatment is begun before the secretory power of the kidney is inhibited.

We will not enumerate the clinical symptoms, since they are so typical that their rehearsal would be superfluous, but will proceed to discuss our plan of treatment and briefly report a series of cases.

The points of election for ureteral stone impaction are: first, at the junction of the ureter with the kidney pelvis; second, at the pelvic brim, and third, just above the ureteral entrance into the bladder, as shown in the accompanying illustration.



Three impacted stones removed without operation: *A*, spinal column; *B*, catheter in ureter; arrows point to impacted ureteral stones.

The plan of treatment is dependent on, first, the location and size of the stone; second, the length of time impaction has persisted, and third, the amount of damage done the secretory power of the kidneys by back pressure or infection or both. If the obstruction has been complete, without infection, for a period of three months, the secretory power of the kidneys is destroyed, and the removal of the stones by our method is impracticable. If infection and disintegration have taken place, the condition is surgical, and its discussion is out of the province of this paper.

This method to us was original, as we have seen nothing in the literature recommending the use of cocain for the removal of ureteral stones previous to that time. Since then a great deal has been written about the use of local anesthesia, electrically heated catheters, special ureteral dilators, fulguration, etc. Our results have been so uniformly good with cocain, procain and oil that we have preferred perfecting our technic in this plan of treatment.

It occurred to one of us (A. J. C.) while endeavoring to remove a ureteral calculus from the ureter of a patient, Feb. 2, 1915, that the pain might be relieved and the muscular fibers of the ureter relaxed by injecting a solution of cocain at the site of the impacted stone. Accordingly 2 c.c. of a 2 per cent. solution of cocain were injected. In two or three minutes' time the spasm was so relaxed that the catheter easily passed beyond the stone. Ten c.c. of sterile olive oil were injected and the catheter removed. Cystoscopy, on the following day, demonstrated the presence of the stone in the bladder. We were thus encouraged to continue its use, and have worked out the following technic:

A No. 5 bismuth catheter is passed into the ureter until it meets resistance. A roentgenogram is taken to ascertain further the location and size of the stone. (If urine is obtained through the catheter, it shows that the obstruction is incomplete and that the kidney is functioning.) Two c.c. of a 2 per cent. solution of cocain are then slowly injected at the site of impaction. In three or four minutes the catheter is passed beyond the stone and 10 c.c. of sterile oil are injected. If we fail to get the catheter beyond the stone, the oil is injected with considerable force against it in an effort to dislodge it as well as to lubricate and dilate the ureter below the stone. The patient is kept well under the influence of morphin, put to bed and instructed to drink water freely to stimulate the functional activity of the kidneys and in this way assist in expelling the stone. Hexamethylenamin should be given in large quantities. This technic is repeated every second or third day, its frequency depending on the patient's tolerance of instrumentation. The size of the ureteral catheter should be increased at each treatment to dilate the ureter. We frequently use sizes up to 14 F. A stone too large to be removed in this way is surgical and should be so handled. It is astonishing, however, to see what a large stone can be removed by this plan.

Of our last thirty-one consecutive patients with ureteral calculi, we have operated on but two, and these were patients who came to our clinic just after we had instituted this method. We now believe we should have succeeded in removing these without operation had we persisted in the treatment.

The calculus was demonstrated cystoscopically in each of these cases or recovered by the patient's voiding through gauze. Absence of the obstruction was further demonstrated by the unobstructed passage of the ureteral catheter and permanent relief from the symptoms.

Roentgenoscopy was negative in twelve of these cases. This shows that we cannot depend on roentgenography exclusively to make the diagnosis of ureteral calculi. Of these patients, four received one; two,

*From the Crowell Urological Clinic.

1. Crowell, A. J.: Importance of Thorough Examination in Urologic Cases, The Journal A. M. A., Oct. 23, 1915, p. 1434.

two; six, three; four, four; two, five; two, six, and one, eight treatments before the stones were recovered. Most of the cases were referred, were chronic in character, and required a greater number of treatments than the more recently impacted ones.

It has been variously estimated that from 40 to 60 per cent. of ureteral calculi will pass spontaneously if the patient is kept under the influence of morphin and left alone. We believe that practically all recently impacted stones can be removed by our plan if the treatment is properly carried out and persisted in sufficiently long.

Clinical Notes, Suggestions, and New Instruments

A POCKET-CARD FOR THE EASY CALCULATION OF MILK-MIXTURES *

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Professor of Pediatrics, University of Pennsylvania School of Medicine

The evident need of a simplification of the procedures required for the prescribing of milk-formulas of known strengths in infant feeding has led to the devising of numerous ready methods. One which, emanating from Germany, has had a decided vogue in parts of this country during the last few years has been denominated the method of the "simple dilution" of whole milk. It probably owes its origin to Heubner, and has much in its favor. It should be at once understood, however, that, contrary to a widespread opinion, it in no sense does away with the calculation of percentages, since it was intended to be employed in conjunction with the estimation of the caloric value of the milk-mixture used; and this, of course, cannot be done unless the percentage composition of the food is known. In fact, it is an impossibility to prepare a milk-formula in a way which offers the best chance of its agreeing with the infant, without a knowledge of the action on the economy of the several different ingredients of the milk, and a recognition of the quantity of fat, sugar and protein which the food contains. The all too frequent attempt encountered in many quarters to use "simple dilutions" without this knowledge is a retrogression to the ignorance under which the physicians of fifty years ago were obliged to labor.

It is further to be observed that the confining of ourselves to simple dilutions of whole milk, while suitable for the feeding of many infants with disturbed digestion, deprives the healthy infants of the amount of fat which they are capable of digesting and ought to have, while on the other hand it maintains an inevitable fixed ratio of fat to protein, which is by no means always desirable. The dilution method is simple and admirable; but we can extend greatly the range of our possible choice of mixtures by using dilutions of certain of the layers of milk: in some cases whole milk; in others milk with a portion of the lower part of the jar removed; in others with a part of the cream layer removed. The process of prescribing the formula, as well as of the preparation of the food, is as easy by one method as by either of the others. These facts are, of course, well understood, but seem prone to be forgotten or ignored by those whose mental vision is concentrated on some single favorite feeding method.

With the object in view of making the preparation of the infant's food as comprehensible and as simple as possible for students, I have for years followed in teaching the procedures now to be described. Recently I have had prepared a printed pocket-card for distribution to the members of my class; and it is a description of the method of using this card which is my object here:

Placed to the left on the front of the card (Fig. 1) is a table of the percentage strengths of fat, sugar and protein of different layers of the quart of milk. The figures given are based on published investigations by a number of writers, as well as on a large number of new analyses made at my request. They may fairly be considered average ones. The table is not entirely accurate, and is not, indeed, intended to be. It is necessary only that it be approximate, since it is not so much initial accuracy which is required as the ability readily to increase or decrease the various percentages as necessity demands. For instance, the actual protein content of whole milk is nearer 3.5 or 3.6 per cent. than it is 4 per cent. The sugar percentage should be 4.5 instead of 4. It long ago impressed me, however, that a slight distortion of the figures would result in the production of certain gradually changing ratios of the fat, on the one hand, to the sugar and protein on the other, which would lighten greatly the labor of any calculating required. In what a simple sequence the ratios run, how easily remembered they are, and what a range of choice they present is shown by an inspection of the table. The error resulting from the intentional distortion referred to is insignificant. For instance, in a mixture containing, according to the table, 2 per cent. of fat and 1 per cent. of protein, the actual protein percentage is nearer 0.9 per cent., and that of sugar 1.12 per cent.—differences which are entirely negligible. It is only when mixtures containing high percentages of protein are employed that the error becomes greater; and then, even with a calculated 3 per cent. protein, it is still less than 0.5 per cent. So, too, the fatter layers of milk, such as those containing 16 or 24 per cent. of fat, possess somewhat less protein than is present in whole milk; but so little of these is usually added to the mixture that the error is entirely trivial. Finally, no allowance is made for the small amount of fat in the lower layers of milk; but this, too, becomes negligible in practice. A short inspection of the table shows how easy it is of application. Thus a milk-formula containing fat, 2 per cent., and protein, 2 per cent., is made by mixing equal parts of whole milk and water, since the ratio of the fat to the protein is 1:1. A formula calling for fat, 3 per cent., and protein, 2 per cent., is constructed by mixing equal parts of water and of the upper 20 ounces of the quart, with a ratio, according to the table, of 1½:1. A low fat formula, such as one containing fat, 1 per cent., and protein, 2 per cent., is made by diluting a portion of the lower 28 ounces of the quart with an equal amount of water. When fat-free milk is desired, the lower 8 ounces can be used, which contain so small a percentage of fat that, especially when diluted, it can be regarded for practical purposes as fat free.

For some individuals it is more convenient to be able to construct a milk-mixture by means of an equation, and by

Table Giving Approximate Percentage-Strengths of Different Layers of Milk

		Per cent. Fat	Per cent. Protein and Sugar	Ratio
Upper	2 oz.	24	4	6 to 1
"	4 "	20	4	5 to 1
"	6 "	16	4	4 to 1
"	8 "	12	4	3 to 1
"	10 "	10	4	2.5 to 1
"	16 "	8	4	2 to 1
"	20 "	6	4	1.5 to 1
"	24 "	5	4	1.25 to 1
"	32 " (whole milk)	4	4	1 to 1
Lower	30 "	3	4	.75 to 1
"	28 "	2	4	.50 to 1
"	16 "	1	4	.25 to 1
"	8 "	0.5	4	0 to 1

To Find the Amount of Any Layer of Milk to be Used to Give Percentages Desired

Equation:

$$\frac{\text{Total amount of food} \times \text{Percentage of fat desired}}{\text{Fat-strength of layer of milk used}} = \text{Amount of this milk in the mixture.}$$

(1) Select from the "Layers of Milk" Table the milk which possesses the desired ratio of fat to protein.
(2) Substitute in the equation.
(3) As the sugar-percentage has been reduced equally with that of the protein, add sufficient sugar to raise to the desired percentage.

Example: 20-oz. mixture desired. Percentages desired = Fat 3, Sugar 6, Protein 1. Use upper 8 oz. (fat 12%, protein 4%, viz: 3 : 1). Then $\frac{20 \times 3}{12} = 5$ oz. of upper 8 oz., with 15 oz. of water in the 20-oz. mixture. The protein necessarily becomes 1%, and the sugar likewise. The mixture already containing 1% of sugar, add 5% of 20 oz., i. e., 1 oz. of sugar to increase this to the 6% desired.

To Determine the Percentages Present in Any Milk-Mixture Already in Use

$$\frac{\text{Quantity of substance used (milk, cream, or skimmed milk)} \times \text{Its percentage-strength}}{\text{Total Quantity of Food}} = \text{Percentage of element (F., S. or P.) in the mixture.}$$

Example: The mother has mixed: Upper 8 oz.; 6 oz.—Lower 8 oz.; 3 oz.—Milk-sugar 3 level tablespoonfuls—Water 27 oz. Total quantity = 36 oz. The upper 8 oz. contains 12% fat (see Table). Both top and bottom milk contain 4% protein and sugar. Three tablespoonfuls sugar = approximately 1 oz. The fat of the lower 8 oz. may be ignored. Then $\frac{6 \times 12}{36} = 3$ = Fat percentage from the top-milk. $\frac{3 \times 0}{36} = 0$ = Fat-percentage from the bottom milk. $\frac{9 \times 4}{36} = 1$ = Protein and sugar percentages from combined top and bottom milk. The 1 oz. additional sugar divided by 36 = approximately 3% sugar added. There being already 1% sugar derived from the milk, the total sugar = 4%.

Fig. 1.—Front of card.

* Read by title at the meeting of the American Pediatric Society, May, 1918.

these the directions on the upper right-hand portion of the card can be used. One great advantage is to be pointed out here, namely, that only one calculation is required for both the fat and the protein, since after we have once selected the percentages of these desired, and chosen the layer of milk which possesses the ratio which these figures represent, as seen in the table, the calculation which gives us the fat necessarily gives us the protein also. Further, that the percentages of protein and sugar obtained by the calculation are the same; that is, if the food has 1 per cent. of protein it has also 1 per cent. of sugar, and the addition of the extra amount of sugar needed is easy.

At the bedside the mother tells us the composition of the infant's food in use in the gross quantities employed by her of milk, cream, sugar, water and the like; and it is necessary in our attempt to discover the faults present that we should be able easily to determine the strength of the mixture in fat, sugar and protein, respectively. The method detailed on the lower portion of the card enables us to do this very readily and quickly.

There are students, however—and practitioners, too—to whom any calculation of the simplest sort is a burden. For the benefit of these I have prepared the table printed on the reverse side of the card (Fig. 2). This enables one at a glance to prescribe practically any percentages likely to be used in which nothing but milk, water and sugar are employed. In the columns to the right of this table are given the caloric

Ready Method for Selecting Amounts to be Employed in Making Various 20-Oz. Milk-Mixtures, and the Caloric Values Resulting

Percentages desired of			Lower 8 oz.	Low- or 16 oz.	Low- or 28 oz.	Whole Milk	Up- per 24 oz.	Up- per 20 oz.	Up- per 16 oz.	Up- per 10 oz.	Up- per 8 oz.	Water oz.	Sugar oz.	Caloric Value of Mixture	Calories per oz.
Fat	Sugar	Prot'n													
0.5	5	1	..	..	5	..	..	..	..	..	..	15	0.8	175	8.75
0.5	6	2	..	10	..	..	..	..	..	..	..	10	0.8	225	11.25
1	6	1	..	..	..	5	..	..	..	..	..	15	1	225	11.25
1	6	1.5	2.5	..	..	5	..	..	..	..	..	12.5	0.9	237.5	11.88
1	6	2	..	..	10	..	..	..	..	..	..	10	0.8	250	12.5
1.5	6	1	..	..	..	..	..	5	..	..	..	15	1	250	12.5
1.5	6	1.5	..	..	..	7.5	..	..	..	..	..	12.5	0.9	262.5	13.13
2	6	1.5	2.5	..	..	..	..	..	5	..	..	12.5	0.9	287.5	14.38
2	6	2	..	..	..	10	..	..	..	..	..	10	0.8	300	15
2.5	6	1.5	2.5	..	..	..	..	..	..	.5	..	12.5	0.9	312.5	15.63
2.5	6	2	..	..	..	..	10	..	..	..	..	10	0.8	325	16.25
2.5	6	2.5	..	..	..	12.5	..	..	..	..	..	7.5	0.7	337.5	16.88
3	6	1	..	..	..	..	..	..	..	..	5	15	1	325	16.25
3	6	1.5	2.5	..	..	..	..	..	..	..	5	12.5	0.9	337.5	16.88
3	6	2	..	..	..	..	..	10	..	..	..	10	0.8	350	17.5
3	6	3	..	..	..	15	..	..	..	..	..	5	0.4	375	18.75
4	4	4	.			20	.	..	..			0	..	400	20

Fig. 2.—Back of card.

values of the 20 ounce mixture, on which, as a matter of convenience, all the calculations are based, as well as the caloric value of each fluidounce of the formula.

In the employment of weak cereal decoctions as diluents, it is customary to ignore the carbohydrate content present. Those who desire to use a cereal water as a diluent and to calculate the amount of carbohydrate derived from this may do so readily by making a decoction of, say, 1 per cent. strength in carbohydrate (about 1 level tablespoonful of barley flour to the pint); adding the percentage of carbohydrate derived from the amount of this used to that coming from the sugar in the milk, and then finally adding sufficient sugar to the mixture to bring the total up to the desired carbohydrate percenage. In ordinary practice with weak cereal diluents this is, however, a refinement not often required.

It should be noted that the commercial pasteurizing of milk interferes greatly with the making of milk-mixtures from the different layers. Indeed, it is practically impossible to produce a food of a fat content sufficiently low for many cases, and the feeding of an infant with fat intolerance is almost an impossibility. My attention was drawn to this fact by my failures with what I had supposed was food of a low fat content, and the failures explained by the discovery that the milk had been commercially pasteurized. With such milk we have no certainty of our ability to make a food containing less than 1.5 per cent. of fat, even if using only the lower 8 ounces of the quart, unless we dilute this with water, and in that event the caloric value is reduced far too greatly. A few examinations which I have made gave approximately top 8 ounces, 10 per cent. fat; top 16 ounces, 6 per cent., and lower 8 ounces, 1.5 per cent., but these are not to be depended on as average figures. This condition is due to the well known effect of pasteurizing in preventing a satisfactory and uniform rising of the cream. Whenever possible when layer milk is to be employed, it should be procured in the jar unpasteurized, as pure as can be obtained, the mixture prepared, and this then pasteurized in the individual feeding bottles.

From the card has been omitted with full intention any tabulated rules for feeding milk-mixtures varying in strength according to the age. My belief is that such rules, though convenient, are unnecessary; and indeed very frequently harmful by teaching the physician to depend on printed age rules rather than on the personal observation of the individual case. It may produce the same effect in taking away his power to think for himself that comes from following the directions for age which uniformly accompany the proprietary foods on the market. In instructing students I emphasize always the great importance of beginning with a formula much weaker in protein and especially in fat than the actual needs of the infant demand; and then, after tolerance for the artificial food has been established, of increasing the strength of the mixture to the extent to meet the infant's needs, as shown by the gain in weight and the general good condition of health. To go beyond this in quantity or strength of food merely because rules for age say it should be done is a sure way of inviting disaster. The method I have mentioned is, I believe, all that is required by the observing and intelligent man; and the unintelligent cannot be really helped by printed rules in which the age is made the chief guide.

USE OLD INNER TUBES FOR ICE BAGS

Kirk W. Holmes, M.D., Colchester, Conn.

In line of conservation, I have for some time past substituted for the ice bag and coil varied lengths of old or discarded inner auto tubes. Parts of these tubes, cut crosswise in lengths varying from a few inches to 2 or more feet, filled with cracked ice and the ends tied with tape, make an ideal ice pack or coil which can be accommodated to any region of the body and, indeed, is to be preferred to the old ice bag, which quickly gets out of order and is expensive. Any small or even large leaks or "blow-outs" can be closed with adhesive plaster. For the extremities, such a coil is especially valuable in completely encircling the part.

Parts cut lengthwise and sterilized can, in an emergency and in the absence of other rubber tissue, be utilized for drains and impervious coverings, and a long length held in front of the ear may be used in ear douching to protect the clothing in place of an ear funnel.

Possibly this has been suggested before; but aside from the real value, conservation alone will in these "parlous" times excuse its suggestion.

Early Vital Statistics.—While the greatest strides in the advance of vital statistics as a science have been made in recent years, their origin may be traced to centuries before Christ. Indeed, Herodotus tells us of a census of Egypt taken about 3050 B. C. for the purpose of making arrangements for the construction of the pyramids. Elsewhere, this same author refers to a second census, taken about 1400 B. C. in Egypt by Rameses II, for the purpose of reapportioning all the land of Egypt among his subjects. The Bible tells us that Moses counted the tribes of Israel to determine their fighting strength, and that David, about 1018 B. C., took a census for the same purpose. There is a record of a census taken in China about 1200 B. C., when data of the provinces were collected by Uking.—S. W. Wynne, *Michigan Monthly Bulletin of Vital Statistics.*

Military Medicine and Surgery

CASES OF EMPYEMA AT CAMP LEE, VA.

PRELIMINARY REPORT

By THE EMPYEMA COMMISSION
CAMP LEE, PETERSBURG, VA.

CONTINUOUS MEMBERS
MAJOR EDWARD K. DUNHAM, M. R. C.
MAJOR EVARTS A. GRAHAM, M. R. C.
MAJOR JAMES F. MITCHELL, M. R. C.
CAPT. ALEXIS V. MOSCHCOWITZ, M. R. C.
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LIEUT. MILTON B. COHEN, M. R. C.
MISS MAUDE H. HAYS, DIETITIAN
MISS BESSE E. STOCKING, ARTIST
MISS E. PAULINE JACOBS, SECRETARY

(*Concluded from page 373*)

CLINICAL OBSERVATIONS ON THE BACTERIOLOGY OF STREPTOCOCCUS EMPYEMA

The pleural exudates from the cases at Camp Lee were examined both in smears and plate cultures prepared with plain agar to which 10 per cent. of defibrinated human blood had been added.

In the fluids obtained by aspiration, hemolytic streptococci alone were found. These were often extremely abundant, a single loop of the exudate yielding from 100,000 to 200,000 colonies in plate cultures.

Stained smears from these exudates showed that the majority of the leukocytes present had undergone necrosis and were in process of disintegration. In many cases there was no evidence of phagocytosis. In other, but fewer, cases, phagocytosis was very marked; as many as forty cocci, sometimes in threads of considerable length, more often appearing as diplococci, were seen in a single phagocyte. But there were always more free organisms than the number incorporated, and the phagocytosis never appeared to be a decisive feature. When it occurred the organisms within the phagocytes sometimes failed to stain deeply and occasionally were reduced to mere shadows, but rather more frequently it was the phagocyte that gave evidence of retrograde changes. In one case, however, the exudate was found to be sterile after the pleural cavity had been several times aspirated, and it is possible that phagocytosis may have been the determining factor in bringing about this result.

The arrangement of the cocci as seen in smears was sometimes in pairs, but short chains of from four to eight biscuit-shaped diplococci were of more frequent occurrence. Longer threads of eighty or more such individuals were rare, but in cases in which these were present, they were often as abundant as the shorter chains. No definite relation could be observed between the severity of the cases and those differences in the streptococci.

The progress of disinfection was followed in the majority of cases coming under the care of the commission, by means of both smears and cultures from the discharges. When practicable, this was regularly done twice weekly in each case.

The results of these studies are of considerable interest, for they demonstrate that the hemolytic streptococcus may persist for a long time in cavities that are merely allowed to drain without effective antiseptic treatment. In one case this organism was continuously present over a period of nearly six months.

They also emphasize the importance of free drainage. Where this is not provided, antiseptic treatment that would otherwise, in the light of observations in freely draining cases, prove effective has failed to accomplish disinfection.

It appears to be a legitimate conclusion from the experience gained through the systematic bacteriologic control of the treatment that when little or no progressive diminution in the numbers of streptococci follows treatment, there must be conditions in the cavity either impeding drainage or preventing contact of the antiseptic solution with all parts requiring disinfection. The value of this information in deciding on modifications in treatment is obvious.

The hemolytic streptococcus is by no means the first organism to disappear under antiseptic treatment in mixed infections of cavities neglected after operation. Putrefactive organisms and the *Bacillus pyocyaneus* disappear much earlier than the streptococcus, as determined by plate cultures. In general, it was observed that the hemolytic streptococcus was present up to the time that the total number of colonies developing from a loopful of secretion fell below 100. When the secretion from the cavity itself became very scanty, it was often impossible to obtain this standard quantity of representative material for culture. If, at that time, a sample of the secretion from the wall of the sinus was taken, this almost invariably contained a large number of viable organisms; but the hemolytic streptococcus could usually no longer be detected even in this situation.

In the routine of dressing adopted, the sinus was bathed with antiseptic only when the dressings were renewed and a culture from this situation obtained only at the longest interval after irrigation. The presence here of large numbers of organisms is, therefore, to be expected. The observations cited show, however, the importance of disinfecting the sinus when the cavity has reached a satisfactory stage of cleansing. For this purpose, a daily treatment with dichloramin-f appears appropriate; but other means might prove equally effective. Until the lung has fully expanded and the wound closed, both cavity and sinus are favorable sites for reinfection.

The curves in Figure 3 illustrate the progress in four recent cases with operation in which disinfection proceeded favorably.

THE NUTRITIVE REQUIREMENTS OF CASES OF STREPTOCOCCUS EMPYEMA

Among the most profitable undertakings of the commission was a study of the nitrogen output of patients in the early stages of empyema associated with the hemolytic streptococcus. It is a common observation that these patients become emaciated and lose strength with great rapidity, and that generous feeding should be a part of their treatment. The amount of nitrogen lost has not, however, been clearly defined. The studies of this subject at Camp Lee, unfortunately,

were limited in scope by two circumstances: the necessary apparatus for nitrogen determinations was not included in the laboratory equipment of the hospital, and before this could be obtained the number of acute cases under observation fell off and no fresh cases were received.

Notwithstanding these circumstances, fairly satisfactory determinations of total nitrogen in the urine and exudate were made in three representative cases, and the results are given in the report by Capt. R. D. Bell, who conducted this investigation:

The nutrition of several cases was studied in detail by means of their nitrogen balance. The food consumed was accurately weighed and the fuel value and the nitrogen content calculated from the tables of Atwater and Bryant. The urine was collected in twenty-four-hour periods, and its nitrogen content determined by the method of Kjeldahl. The daily excretion of nitrogen into the pleural cavity was

TABLE 1.—NITROGEN INTAKE AND OUTPUT IN CASE 1

Period Ending 9 a.m.	Food		Urine		Exudate						
	Cal.	Gm. N	Vol. C.c.	Gm. N	Vol. C.c.	Per Cent. N	Gm. N	Gm. N Day	N Balance	Creatinin	Creatin
4/28	1,408	9.7	1,000	16.4	...	0.747	...	...	— 8.7		
4/29	1,758	11.9	2,050	31.7	...	.....	...	...	—21.8		
4/30	1,100	9.0	1,525	19.9	540	0.741	4.0	2.0	—12.9		
5/ 1	2,210	14.6	2,250	21.0	...	.....	...	...	— 7.2		
5/ 2	3,732	24.0	2,915	16.9	215	0.711	1.5	0.8	+ 6.4		
5/ 3	3,322	23.2	3,030	13.0	...	.....	...	...	+ 8.5		
5/ 4	2,955	20.2	3,060	16.2	480	0.651	3.3	1.7	+ 2.3		
5/ 5	3,573	25.3	2,740	19.6	...	.....	...	...	+ 4.1		
5/ 6	3,237	22.2	1,500	14.2	360	0.869	3.1	1.6	+ 6.4		
5/ 7	3,108	23.3	1,770	18.1	...	.....	...	...	+ 3.9		
5/ 8	3,288	22.2	2,050	18.8	...	.....	...	...	+ 2.1		
5/ 9	3,780	26.5	.....	....	345	1.158	4.0	1.3			
5/10	3,347	21.7	1,750	19.1	...	.....	...	...	+ 1.3		
5/11	3,662	25.6	1,640	19.3	220	1.201	2.6	1.3	+ 5.0		
5/12	2,763	16.9	1,490	17.0	...	.....	...	...	— 1.4		
5/13	3,510	25.2	1,600	14.8	...	.....	...	...	+ 9.1		
5/14	1,679	11.0	1,560	17.2	...	.....	...	...	— 7.5		
5/15	464	3.4	250	3.2	(Operated on 3 p.m. 5/14. These 2 days not properly separate)				— 7.7		
5/16	2,444	16.3	1,560	29.3	.....				+ 7.0		
5/17	3,125	21.5	1,310	13.2	.....				+ 7.0		
5/18	2,794	18.0	1,310	10.4	.....				+ 6.3		
5/19	2,850	19.7									
5/20	2,807	18.2	1,700	14.0	.....				+ 2.4		
5/21	1,839	11.8									
5/22	2,194	13.2	1,710	19.3	.....				— 7.4		
5/23	2,503	14.5	1,520	15.8	.....				— 2.6	1.651	0.156
5/24	2,577	17.3	2,200	18.4	.....				— 2.4	1.857	0.143
5/25	2,518	17.4	1,210	9.7	.....				+ 6.4	1.058	0.103
5/26	3,734	25.1	1,540	12.1	.....				+11.7	1.112	0.0.9
5/27	3,156	20.4	1,700	15.5	.....				+ 3.6	1.653	0.057
5/28	3,880	25.4	1,750	16.4	.....				+ 7.7	1.695	0.000
5/29	3,569	23.4	1,800	14.6	.....				+ 7.5	1.634	0.000
5/30	3,972	25.3	1,530	16.0	.....				+ 8.3		

obtained by measuring and analyzing the exudate every time the patient was aspirated. After operation, the exudate could not be collected and the daily pleural nitrogen excretion was assumed to be the same as just before operation. Since the daily amount of nitrogen in the exudate was not over 2.5 gm. per day, this assumption involves no serious error.

The nitrogen of the feces is disregarded, and for this reason the nitrogen balances given are slightly too favorable.

In Tables 1, 2 and 3 the nitrogen intake and output of three of these patients are given. Complete twenty-four-hour specimens of urine could not always be obtained, and figures are omitted on such days.

The patients had been kept on a soft diet containing from 1,100 to 1,700 calories, and were losing from 12 to 20 gm. of nitrogen per day. They were placed on the regular hospital diet, supplemented by extra feedings of eggs and milk. No attempt was made to keep them at a constant level of feeding since the increased accuracy of the figures would not have justified the loss of food to the patient.

Figures 6, 7, 8 and 9 represent the relation of the nitrogen balance to the food intake. The broken line represents nitrogen gain or loss in grams, and the unbroken line represents the food intake in calories.

TABLE 2.—NITROGEN INTAKE AND OUTPUT IN CASE 2

Period Ending 9 a.m.	Food		Urine		Exudate						
	Cal.	Gm. N	Vol. C.c.	Gm. N	Vol. C.c.	Per Cent. N	Gm. N	Gm. N Day	N Balance	Creatinin	Creatin
5/17	2,136	12.8	2,980	21.3	(No exudate obtained by aspiration)				— 8.5		
5/18	3,106	18.4	3,310	19.7					— 1.3		
5/19	3,638	21.1	3,070	15.8	.....				+ 5.3		
5/20	3,751	22.4	4,680	17.5	.....				+ 4.9		
5/21	3,416	19.6	3,700	17.1	.....				+ 2.5		
5/22	3,205	15.8	2,880	18.2	.....				— 2.4		
5/23	3,690	21.2	2,700	16.1	.....				+ 5.1	1.226	0.019
5/24	3,737	18.8	3,540	17.6	(Vomited, amt. est. 400 Cal.)				+ 1.2	1.508	0.014
5/25	2,697	14.6	2,120	15.0					— 0.4	1.285	0.082
5/26	3,220	16.3	2,940	15.5	.....				+ 0.8	1.427	0.171
5/27	2,512	13.1	1,700	13.6	.....				— 0.5	1.349	0.130
5/28	3,121	17.7	3,330	15.1	.....				+ 2.6	1.542	0.043
5/29	2,520	12.8	1,820	11.3	.....				+ 1.5	1.138	0.076
5/30	2,675	15.5	2,220	15.9	.....				— 0.5		
5/31	3,037	19.7	2,540	15.3	.....				+ 4.4		
6/ 1	2,643	15.2	2,340	16.9	.....				— 1.7		
6/ 2	2,042	13.6									
6/ 3	2,666	16.2	1,350	14.3	.....				+ 1.9		
6/ 4	3,450	25.4	2,050	14.6	.....				+10.8		
6/ 5	3,017	17.9	2,200	14.0	.....				+ 3.9		
6/ 6	2,695	12.7	2,650	16.1	(Operated, 50 c.c. pus)				— 3.4		
6/ 7	1,079	6.2	2,270	12.2	.....				— 6.0		
6/ 8	1,600	10.5									
6/ 9	2,295	11.0	1,180	9.5	.....				+ 1.5		
6/10	3,159	15.8	1,370	10.7	.....				+ 5.1		
6/11	3,968	17.1	1,180	8.5	.....				+ 8.6		
6/12	2,956	17.2	1,380	11.0	.....				+ 6.2		
6/13	3,508	14.8	1,570	11.6	.....				+ 3.2		
6/14	3,356	15.8	1,300	9.4	.....				+ 6.4		
6/15	3,495	18.8	1,040	9.8	.....				+ 9.0		
6/16	3,502	19.3	1,160	10.7	.....				+ 8.6		
6/17	3,630	19.1	980	9.5	.....				+ 9.5		

Nitrogen equilibrium is placed at 3,000 calories. With the scale used (10 gm. of nitrogen and 1,000 calories to one large square), the curves run quite parallel. Wherever the unbroken line is above the broken line more than 3,000 calories would have been required to

TABLE 3.—NITROGEN INTAKE AND OUTPUT IN CASE 3

Period Ending 9 a.m.	Food		Urine		Exudate						
	Cal.	Gm. N	Vol. C.c.	Gm. N	Vol. C.c.	Per Cent. N	Gm. N	Gm. N Day	N Balance	Creatinin	Creatin
4/28	1,408	9.7	3,030	20.3	...	0.827	...	...	—12.9		
4/29	2,397	16.4	4,300	22.1	...	.....	...	...	— 8.0		
4/30	1,745	10.6	4,100	22.2	595	0.790	4.7	2.3	—13.9		
5/ 1	2,061	18.2	3,710	22.7	...	.....	...	...	— 6.8		
5/ 2	3,403	21.7	2,590	21.0	415	1.123	4.7	2.3	— 1.6		
5/ 3	3,087	21.8	3,240	17.7	(Operated 11 a.m.)			...	+ 1.8		
5/ 4	1,200	8.9									
5/ 5	1,842	13.2									
5/ 6	2,263	16.1	870	14.0	.....			0.2	+ 0.1		
5/ 7	2,040	13.1									
5/ 8	2,007	10.5	760	10.1	.....			1.9	— 1.6		
5/ 9	1,891	10.9	850	11.6	.....			3.0	— 2.7		
5/10	3,057	21.1	1,000	10.9	.....			7.9	+ 8.2		
5/11	2,760	18.6									
5/12	2,610	16.1	1,180	11.3	.....			2.5	+ 2.8		
5/13	3,297	22.5	1,500	7.4	.....			12.4	+12.6		
5/14	3,522	25.4									
5/15	3,479	26.1	1,120	11.4	.....			12.4	+13.7		
5/16	3,466	20.5	1,300	6.2	.....			12.0	+12.3		
5/17	2,922	19.21									
5/18	2,580	16.03									
5/19	3,129	21.6									
5/20	3,103	21.2	2,210	16.8	.....			2.1	+ 2.4		
5/21	3,170	22.4	.....	....	.....			9.2			
5/22	3,219	19.1	1,470	11.4	.....			5.4	+ 5.7		
5/23	3,331	19.4	2,480	13.8	.....			3.3	+ 3.6	1.736	0.701
5/24	2,761	17.2	1,500	10.3	.....			4.6	+ 4.9	1.278	0.151
5/25	3,760	24.7	1,400	9.2	.....			13.3	+13.5	1.000	0.594
5/26	4,228	26.7	2,770	11.0	.....			13.4	+13.7	1.518	0.134
5/27	3,284	22.3	2,060	12.2	.....			7.8	+ 8.1	1.642	
5/28	3,640	21.6	1,880	12.1	.....			10.2	+10.5	1.512	0.009
5/29	3,715	23.0	1,310	12.9	.....			7.8	+ 8.1	1.576	0.055
5/30	3,470	23.5	1,560	14.4	.....			6.8	+ 7.1		

keep the patient in equilibrium, and wherever the broken line is above the unbroken line, less than 3,000 calories would have maintained equilibrium. The distance between the lines is a rough measure of the

amount above or below 3,000 calories required to maintain equilibrium.

It will be noticed that in the acute stage of the disease with a high temperature, from 3,000 to 3,300 calories are needed to maintain equilibrium. It will also be noted that some patients lost weight although they had a constantly positive nitrogen balance. This is probably due to the fact that the nitrogen of the feces was disregarded. Probably from 3,300 to 3,500 calories would have been needed to maintain body weight.

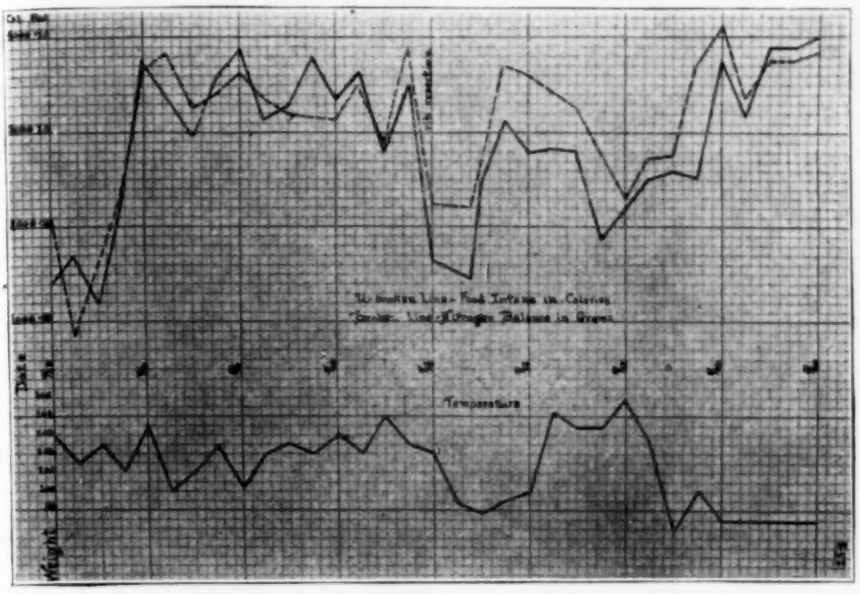

Fig. 6 (Case 1).—Nitrogen conservation following liberal diet.

Since these patients can lose in one day of low feeding as much as can be regained in several days of high feeding, it is important that a close watch should be kept on their food intake. It is recommended that they be placed on a standardized diet containing from 3,300 to 3,500 calories as early as possible and kept on this diet until they have reached their normal weight. The fuel value of any food remaining uneaten should be estimated, and extra feedings of eggs, milk, etc., given to make up the total. While the patient is very ill, lactose drinks may be used and, if necessary, glucose by rectum or intravenously. The patient should be weighed on admission and at least once a week thereafter.

Tables 4, 5, 6 and 7 show a few sample diets and the gains in weight that may be made by such feeding. This diet was estimated by the mess officer of the hospital to cost 87 cents a day.

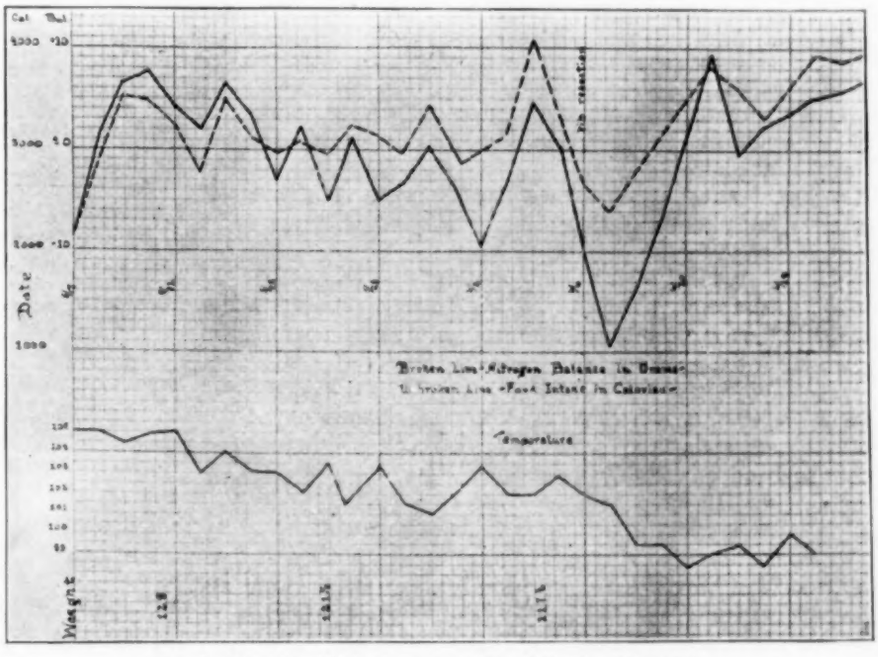

Fig. 7 (Case 2).—Nitrogen conservation following liberal diet.

SUMMARY AND CONCLUSIONS

1. An exudative pleuritis is a relatively frequent complication of the bronchopneumonia associated with hemolytic streptococci.

2. The evidence that this complication is an example of selective invasion of serous membranes by this organism is defective. The involvement of the pleura is probably an extension of the infection from the lungs, often through the medium of a subpleural pulmonary abscess.

3. During the earlier stages of the pleuropneumonic process the pleuritis is probably of far less import than the pulmonary condition and general toxemia.

4. The evacuation of the pleural exudate by operation early in the disease involves greater risks, without compensating benefits, than the removal by aspiration. Much of the relief offered by operation without its attendant dangers can be afforded by aspiration, repeated according to indications. The condition of the patient at this time calls for medical rather than surgical treatment.

5. The results of further immunologic studies may offer a mode of treatment particularly applicable to the early phases of infection with the hemolytic streptococcus. At present there is little or no evidence that available serums are useful.

6. In the early stages of this pleuritic infection the exudate is serofibrinous, the amount of serum being often very large. Later, the exudate becomes progressively more purulent and eventually is a frank, creamy pus.

If treatment by aspiration is continued thereafter, this pus may become sterile, as we have observed in one case. But this should be regarded only as an unusual occurrence, and for a rapid convalescence an operation for its removal and access to the cavity for drainage and antiseptic treatment is called for. Three of our patients, however, have recovered with repeated aspirations, without the necessity of operation. But in none of these had frank pus formed by the time of last aspiration.

7. During the period in which the forgoing changes in the pleural fluid are taking place, the general condition of the patient usually improves and operative interference is attended with comparatively little risk and much benefit.

TABLE 4.—SAMPLE DIET 1

Ward 10; May 7-8; 9 a. m.; Calories, 3,588; Nitrogen, 22.18; Proteins, 138.6; Fats, 124.6; Carbohydrates, 380.6

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohydrates
Eggs (3)	.....	19.8	18.0	....
Milk	960.0	31.7	38.4	48.0
Sugar	26.0	....	....	26.0
Lamb chop	42.0	9.1	12.5	....
Potato	91.0	2.3	0.1	19.0
Spinach	70.0	1.5	2.9	1.8
Green peas	60.0	4.6	4.9	10.0
Rice pudding	152.0	9.9	7.6	39.2
Toast	163.0	18.7	2.6	99.7
Butter	17.0	....	14.4	....
Ice cream	50.0	2.6	5.0	8.8
Vegetable soup	.....	14.0	....	8.4
Lettuce	10.0	0.1	....	0.3
Macaroni	150.0	4.5	2.2	23.7
Baked apple	.....	0.6	0.6	29.3
Cocoa	270.0	11.0	13.8	17.5
Orange	100.0	0.8	0.2	11.6
Oatmeal	200.0	5.6	1.0	23.0
Banana	102.0	0.8	0.4	14.3

TABLE 5.—SAMPLE DIET 2

Ward 10; May 8-9; 9 a. m.; Calories, 3,780; Nitrogen, 26.52; Proteins, 165.8; Fats, 146.6; Carbohydrates, 423.6

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohydrates
Milk	1,560.0	52.5	63.6	79.5
Eggs (5)	.....	33.0	30.0	....
Sugar	17.0	....	....	17.0
Oranges (3)	400.0	3.2	0.8	46.4
Minced chicken	212.0	36.2	23.0	10.0
Potato	100.0	2.5	0.1	20.9
Toast	242.0	27.8	3.9	148.1
Butter	20.0	....	17.0	....
Tomato	150.0	1.7	0.5	7.0
Cake	48.0	3.0	2.2	27.3
Ice cream	48.0	2.5	4.8	8.5
Cream of wheat	210.0	3.4	0.7	23.8
Prunes	100.0	....	....	35.1

8. The operation should be preceded by a fluoroscopic examination to fix on the most favorable site for the incision.

9. Local anesthesia suffices and is preferable to a general anesthetic.

10. The drainage of the empyemic cavity after operation should be both complete and continuous.

11. Antiseptic treatment of the cavity should be instituted as promptly and thoroughly as conditions permit.

12. In cases not complicated by bronchial communications with the empyemic cavity, neutral solution of chlorinated soda, 0.5 per cent. (Dakin's solution), may be used effectively in cleansing and disinfecting the cavity. In recent cases with free access to all parts of the cavity, dichloramin-T, 5 per cent. dissolved in chlorcosane may be substituted for Dakin's solution; but if there is a thick fibrinous deposit on the pleural surfaces, this is less readily removed and drainage is more difficult to maintain than when Dakin's solution is employed.

13. In applying chlorin antiseptics (Dakin's solution or a chlorcosane solution of dichloramin-T), the following conditions should receive attention:

(*a*) Free drainage.

(*b*) Contact of the antiseptic solution with all parts to be disinfected. This is best secured when Dakin's solution is used with from one to four Carrel tubes variously disposed within the cavity, and an exit tube passing through the thoracic wound to insure drainage.

(*c*) Adequate quantities of the antiseptic solution must be used, with sufficient frequency of application to maintain its action over the period of time necessary for disinfection. In determining these quantities and suitable intervals between instillations, the following guides are suggested, to be modified in individual cases according to the results obtained and other conditions: When treatment is begun, one half of the estimated capacity of the cavity may be introduced at each instillation, but not to exceed 200 c.c. The interval between instillations may, at the beginning, be one hour. As disinfection distinctly progresses, the interval may be increased.

(*d*) At the time of renewing dressings, once daily, an opportunity is given for supplementing the drainage of the cavity and improving the contact of the antiseptic by a cleansing irrigation with Dakin's solution.

14. As disinfection proceeded, the following observations have been made:

(*a*) The amount of secretion diminished.

(*b*) Its purulent character became progressively less marked and ultimately disappeared.

(*c*) With the disappearance of the pus, the discharges became viscid, a glairy, translucent material

TABLE 6.—SAMPLE DIET 3

Ward 10; May 9-10; 9 a. m.; Calories, 3,347; Nitrogen, 21.71; Proteins, 135.7; Fats, 121.4; Carbohydrates, 405.4

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohydrates
Milk	810.0	26.7	32.4	40.5
Eggs (3)	.....	19.8	18.0	....
Sugar	25.0	....	....	25.0
Chopped beef	80.0	22.1	6.2	....
Potato	70.0	1.7	0.1	14.6
Purée peas	70.0	5.8	4.0	26.8
Toast	143.0	16.4	2.3	87.5
Butter	20.0	....	17.0	....
Custard	132.0	5.5	8.3	34.3
Apple sauce	134.0	0.3	1.1	49.8
Pudding, bread custard	102.0	6.5	5.0	25.8
Lemon (1)	.....	1.0	0.7	8.5
Cocoa	570.0	20.9	25.8	32.5
Hominy	200.0	4.4	0.4	35.6
Prunes	110.0	0.6	0.1	24.5

TABLE 7.—SAMPLE DIET 4

Ward 10; May 10-11; 9 a.m.; Calories, 3,662; Nitrogen, 25.55; Proteins, 159.7; Fats, 147.5; Carbohydrates, 398.8

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohydrates
Milk	1,050.0	34.6	42.0	52.5
Eggs (6)	.....	39.6	36.0	....
Lemon (1)	.....	1.0	0.7	8.5
Sugar	28.0	....	....	28.0
Orange juice	60.0	0.5	0.1	7.0
Oatmeal	200.0	5.6	1.0	23.0
Toast	255.0	29.3	4.1	156.1
Butter	30.0	....	25.5	....
Potato	82.0	2.0	0.1	17.1
Spinach	80.0	1.7	3.3	2.1
Fish	70.0	14.0	1.7	....
Chocolate pudding	110.0	5.0	7.9	27.8
Ice cream	130.0	6.8	13.1	23.0
Vegetable soup	420.0	10.5	....	18.0
Cocoa	120.0	5.0	6.3	8.0
Custard	90.0	3.8	5.7	23.4
Peach	40.0	0.3	....	4.3

appearing on the dressings and in the return fluid on irrigation.

(*d*) This character was, in turn, lost and the total amount of secretion from the cavity became very small. On irrigation, the outflowing return was clear. When this was the case, the cavity itself was substantially sterile. But these indications should not be

accepted as conclusive evidence that the external wound my be closed without risk of recurrence.

15. The progress of disinfection may be followed by bacteriologic examination of the discharges, best by means of poured plates with defibrinated blood agar. In this way an indication may be obtained of imperfect contact of the antiseptic with the whole of the empyemic cavity, as well as the time of disappearance of the hemolytic streptococcus.

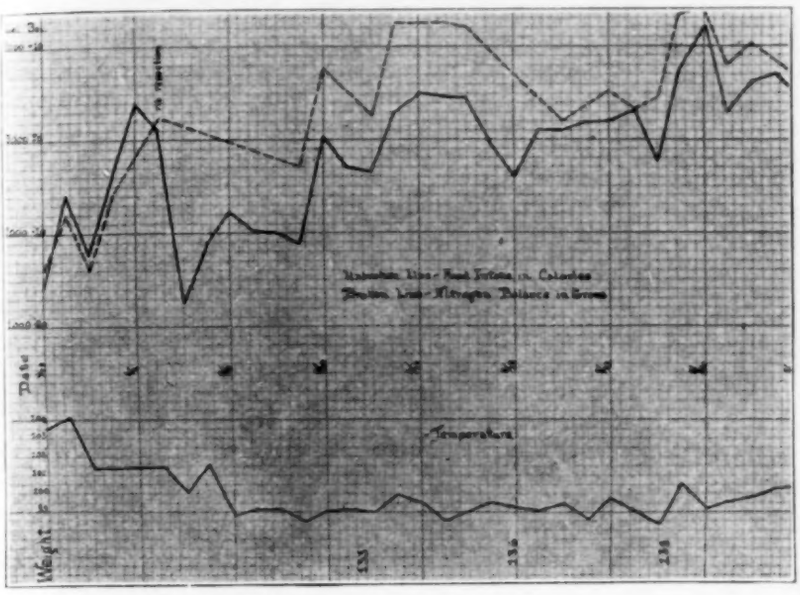

Fig. 8 (Case 3).—Nitrogen conservation.

16. When the empyemic cavity has become cleansed beyond the point characterized by a viscid secretion from the wound, there is usually evidence of increased freedom for expansion of the lung. This is most marked in cases that have not been allowed to run a too protracted course before antiseptic treatment was instituted. When treatment has been greatly delayed, it is probable that a layer of dense fibrous tissue on the surface of the lung tends to restrict its expansion.

17. The danger of such cicatricial fixation of a compressed lung is an indication for prompt operation and cleansing of the empyemic cavity after the acute stages of the disease have passed.

18. With regard to the operative closure of the thoracic wound, few cases of such closure after cleansing and disinfection have been under observation for a length of time sufficient to give complete confidence that no recurrence will take place. The following observations on the total number of cases at Camp Lee may, however, be of some value in this connection:

(*a*) External wounds that are allowed to close spontaneously after prolonged drainage, but without cleansing or disinfection with antiseptics, even when the cavity has apparently become obliterated and only a sinus remains through the thoracic wall, are frequently followed by recurrence, an empyemic cavity, often of some size, not infrequently being revealed on subsequent examination, even after the lapse of several weeks of apparent health.

(*b*) Cavities that have been treated with antiseptic solutions in the manner described until cleansing and disinfection appear satisfactory should be closed, if at all, with great circumspection unless there is a free expansion of the lung. A failure of such expansion may be an indication of some undetected process that will eventually lead to a recurrence of the empyema.

19. Direct observations have been inadequate to define the conditions underlying a recurrence of suppuration after what has proved to be premature closure of the thorax; but there are several possibilities that serve to warrant caution. Among these are:

(*a*) Small lacunae which drain imperfectly into the main cavity and are not reached by antiseptic solutions introduced into the cavity.

(*b*) An irregular expansion of the lung leading to imperfect apposition of the visceral and parietal surfaces throughout their whole extent, leaving pockets that escape treatment. This irregular expansion might be due to (1) local variations in the thickness or pliability of the granulations; (2) residual fibrinous deposits on some parts of the surfaces; (3) irregular contraction of new-formed interstitial tissue within the lung, or (4) subpleural pulminary abscesses, perhaps of very small size, or excavations in the pulmonary surface resulting from such abscesses.

(*c*) A necrosis with infection of portions of a rib.

20. Expansion of the lung can be encouraged and, perhaps, accelerated by various procedures, such as: (1) blowing against resistance; (2) the use of negative pressure and gentle suction devices, and (3) properly controlled exercises which induce not only a more active metabolism but also more active breathing. The influence of such measures can be directly observed, but unless they can be maintained over a period long enough for at least agglutination between the surfaces to take place, it is doubtful whether they materially hasten obliteration of the pleural cavity. Spontaneous expansion of the lung reduces the size of these cavities often with surprising rapidity, once cleansing of the surface has been accomplished.

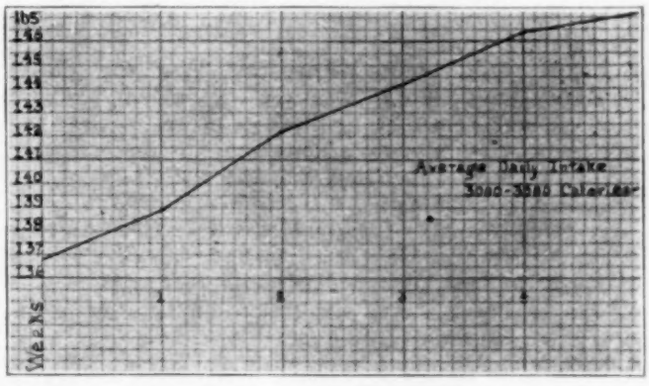

Fig. 9.—Increasing weight following liberal diet during convalescence.

21. Nitrogen excretion is markedly increased during the early acute stages of this streptococcus infection. Emaciation and loss of strength are associated with this augmented protein metabolism. It may, however, be checked by raising the fuel value of the diet to a daily ration of from 3,000 to 3,500 calories. This may be done in practice by adding increased quantities

of milk, eggs, cocoa, etc., to the dietary, or by supplementing this with some readily assimilable carbohydrate as, for example, lactose in a beverage.

22. For the roentgen examination of old cavities with fistulas, we have found thorium nitrate in 10 and 15 per cent. solutions to be of value. Its advantages over pastes of various kinds are its ease of introduction and of withdrawal. A 20 per cent. aqueous solution of potassium iodid appears to give results about equivalent to those secured with the solution of thorium, and is more easily obtained and less expensive. Like thorium nitrate, it is distinctly though mildly irritating.

23. The increased expansion of the lung following the use of Dakin's solution leads to the hope that extensive intrathoracic operations, such as decortication of the lung, may in most cases prove unnecessary. Such procedures should be undertaken only after most prolonged efforts to obtain expansion of the lung have failed, and then only when the surgeon has at his command every facility in the shape of intratracheal anesthesia, assistants and armamentarium.

MEASURES FOR THE PREVENTION AND CONTROL OF RESPIRATORY INFECTIONS IN MILITARY CAMPS*

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The two great surprises of the last year in the Army camps have been, first, the rarity of gastro-intestinal infections, and, secondly, the frequency of respiratory infections, particularly of the streptococcus group.

In former wars, infections of the alimentary tract, such as typhoid and dysentery, were responsible for the great epidemics. In our training camps of today, typhoid and paratyphoid are curiosities and dysentery is an exceptional occurrence. The disappearance of this formidable group of diseases can be attributed in part to the general use of typhoid inoculation and in large measure to the safeguarding of the drinking water from contamination.

During the Spanish-American War the danger arising from polluted water was well known, but careful and comprehensive methods of protection were not carried out. Today an army camp digs its own wells, builds reservoirs, subjects the water to frequent bacteriologic examinations, and in other ways rigidly and scientifically applies the knowledge gained by previous failure. No expense is too lavish, no effort too great, to provide this insurance of soldiers against water-borne infections. And the results abundantly justify the expenditure.

Are we employing equally rational and efficient methods in our efforts to control respiratory infections? Are we not neglecting to apply certain preventive measures that are logically suggested by our knowledge of their etiology and of their modes of dissemination?

MILK AS A CARRIER OF STREPTOCOCCI

Infected milk, cream and ice cream may be playing a rôle in the causation of respiratory infections, especially those due to the streptococcus, somewhat similar to that of contaminated water in the causation of gastro-intestinal diseases. That virulent streptococci flourish in milk is well known. The epidemics of streptococcus sore throat in recent years in Boston, Chicago, Baltimore and many smaller cities, traced as they were to contaminated milk, fully demonstrate that milk must always be reckoned with as a potential cause of any streptococcus outbreak. Even ice cream may preserve these germs in a virulent form for several weeks. Milk is capable also of carrying the germs of scarlet fever, diphtheria and perhaps of other contagious respiratory diseases.

During last winter a sharp epidemic of septic sore throat at Camp Grant was attributed, with a high degree of probability, to the milk. Following these cases came a wave of scarlet fever. Both of these diseases decreased when the milk was boiled.

The prevalence of streptococcus infection, both primary and secondary, has been remarkable in all the camps. It is not far from the truth to say that the streptococcus has been responsible for more deaths than all other organisms combined. Sore throat, bronchitis, sinusitis, pleurisy, bronchopneumonia and pericarditis, have been the more common manifestations. Of course, the contagion spreads from one person to another, but it is quite possible that a fresh stream of streptococci is constantly flowing into the camp and being disseminated by milk, cream and ice cream. A comprehensive and exhaustive study of this whole subject by competent investigators is imperatively needed at the present time.

In the meantime, however, in view of the constant danger of contamination, all milk and cream products should be pasteurized under direct supervision of the camp authorities. The most satisfactory and reliable means of accomplishing this end is to build and equip a pasteurizing plant in the camp proper, and have the process carried out and supervised by Army men. Such a plant could also manufacture all the ice cream used at messes and canteens.

Thorough pasteurization of milk in its various forms might reasonably be expected greatly to cut down the incidence of streptococcus infections and possibly that of scarlet fever and diphtheria.

ISOLATION OF SOLDIERS BY MEANS OF THE FACE MASK

As previously stated, most of the diseases encountered in the training camps are infections of the respiratory tract such as meningitis, diphtheria, scarlet fever, mumps, measles, German measles, pneumonia, whooping cough, streptococcus tonsillitis, bronchitis and bronchopneumonia. All of these communicable diseases are transmitted from one individual to another by means of the secretions of the nose and throat. Talking, coughing and sneezing force a fine spray of mucus and bacteria into the air which may directly infect another person and which contaminates clothes, bedding and furniture.

Crowding in barracks, at the mess table, and in recreation rooms facilitates the transmission of these infections and explains their rapid spread in Army camps. Crowding in the ambulance, in the receiving office and in the wards is even more favorable to germ transmision, because a large proportion of these soldiers are already affected with some contagion, and they simultaneously expose themselves and their comrades to a secondary infection.

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

The remedy for crowding is group separation and, as far as possible, individual isolation. The segregation of newly arrived troops for three weeks in detention camps is one of the most vital measures in checking contagion.

The expedients of increasing the space between beds in barracks, of placing the head of one soldier opposite the feet of his neighbor, of stretching tent flaps between beds, and of suspending a curtain down the center of the mess table, are all of proved value. But the most efficient method for securing isolation of the individual is the use of a face mask, made with three or four layers of gauze in the shape of a rectangle measuring 5 by 7 inches.[1] The mask has long been employed by surgeons as a filter for the expired air in the operating room. It has been used successfully at the Durand Hospital by Weaver[2] for the protection of physicians and nurses engaged in the care of patients with contagious disease.

So far as we can learn, however, the use of the face mask for patients had never been practiced. In a hospital where each patient is confined to a separate room, there is no reason for masking the patients. But in hospital wards where, even with cubicles, patients must mingle and expose one another to respiratory infections, the face masks on theoretical grounds promised protection.

The experiment was started at Camp Grant[3] in the latter part of January, 1918, and was so successful that it was instituted as a routine measure in most of the medical wards early in February.

The system is carried out (1) at the regimental infirmary, (2) in the ambulance, (3) in the receiving office, and (4) in the wards. The directions observed are as follows:

1. At the regimental infirmary every patient with contagious disease is masked immediately after the diagnosis is made.

2. Every patient on entering the ambulance, whether infected or clean, is masked. Each ambulance carries a box of clean masks, which is replenished at the receiving ward.

3. At the receiving office the ambulance patients continue to wear their masks. Other patients who walk to the hospital for minor ailments are masked at the door by a noncommissioned officer. All retain the mask in place during the examination and on the trip to the ward, and remove it only when they are in the ward cubicles. Since the initiation of this practice, the occurrence of cross-infection from contact in ambulance and receiving ward, previously quite frequent, has been rarely observed.

4. In all wards for contagious and respiratory diseases (this includes nearly all the medical wards) the mask is worn by patients as well as by physicians, nurses, ward men and visitors. As long as the patient remains within the shelter of the cubicle he need not wear the mask, but he puts it on whenever he leaves the cubicle for any reason. Patients must either have their meals served in bed or while masked procure their tray of food and carry it to the cubicle. All eating utensils are sterilized after each meal.

Smoking is absolutely prohibited, as it necessitates the removal of the mask.

In view of the danger of transmission from the wash bowls, the plugs are removed, so that only running water is available for washing the face and teeth. Only one person at a time is allowed in the wash room, as the mask is necessarily removed therein. On the other hand, there is no objection to several persons occupying the latrine at the same time. The latrine is kept separated from the wash room in the double wards by locking the communicating door, in the single wards by hanging up sheets between closets and wash basins. To enforce the wash room regulations, a guard, who is usually a convalescent patient, sits outside the door.

Much depends on stimulating a lively interest in the scheme on the part of nurses and ward men. The ward surgeon very easily wins the cooperation of the patients themselves by frequent short talks, explaining the purpose of the masks and pointing out their similarity to the gas masks.

From February 1 to June 1, 1918, the cubicle and mask were in continuous operation. Whenever a case of scarlet fever broke out the ward was placed in quarantine for one week; when measles broke out, the ward was quarantined for two weeks.

In twenty wards exposed to scarlet fever as a secondary infection, only one subsequent case of scarlet fever developed during the week of quarantine.

In eight wards exposed to measles as a secondary infection, not a single case of measles developed during the two weeks of quarantine.

The system may be said to have been efficient in 95 per cent. of the exposures to scarlet fever and in 100 per cent. of the exposures to measles.

If this experience can be taken as a criterion, we soon shall be justified in ignoring the quarantine of the ward in these cross-infections, provided the system of masking and the cubicle is in good working order at the time of their appearance.

1. Commercial gauze varies greatly in weight and closeness of weave, so that it is important to fix a standard texture and the number of layers required to afford protection. Major Haller, chief of the laboratory at this hospital, is completing bacteriologic experiments for this determination and will publish his results in an early number of THE JOURNAL.

2. Weaver, G. H.: The Value of the Face Mask and Other Measures in Prevention of Diphtheria, Meningitis, Pneumonia, etc., THE JOURNAL A. M. A., Jan. 12, 1918, p. 76.

3. Capps, J. A.: A New Adaptation of the Face Mask in Control of Contagious Disease, THE JOURNAL A. M. A., March 30, 1918, p. 910.

ABSTRACT OF DISCUSSION

DR. JAMES S. MCLESTER, Birmingham, Ala.: We have used the method suggested by Dr. Capps at Camp Sheridan with satisfactory results. At one time in the measles ward almost every patient had coryza or bronchitis, and bronchopneumonia was developing rapidly. We removed every case of bronchopneumonia as soon as recognized, but that did not stop the spread. Finally, we put all the beds in that ward in cubicles and washed all the patients. Very soon the bronchopneumonia ceased to appear. That was to me a graphic demonstration of the value of the mask and of the cubicle system of isolation. Later on we had a similar experience in an epidemic of so-called grip. This disease spread rapidly through the hospital. Finally we made universal use of the mask and the cubicle and were thus able effectually to control the epidemic.

DR. JOHN A. LICHTY, Pittsburgh: In a large civilian hospital during the past winter our experience was much like that of Major Miller and Major Stone. We had two epidemics of pneumonia in the Mercy Hospital at Pittsburgh. The first epidemic came early in the winter and seems to have occurred mostly in colored men who had come from the South in the summer and who had never lived in the North. They came poorly clad and were improperly housed. They did not use the large wages they received to feed themselves properly. These men had a typical lobar pneumonia. They came into the hospital late, usually on the seventh day; and the mor-

tality was very high. We did not have time to group them all or to treat them with the serum after they were grouped because they died so soon after entering the hospital. The other group came in the latter part of the winter when the cold weather began to break up. This was an entirely different class, and it corresponded with the class of pneumonia which seems to have occurred in the camps where there were abscesses of the lungs, empyema, etc., because they were very irregular, they were hard to diagnose, and, no matter whether they came in early or late, the cases were almost invariably fatal.

There should be propaganda work with reference to pneumonia just as there is with cancer. The laity should know what the early symptoms of pneumonia are, or the laity should be as keen about pneumonia as they are about appendicitis. Then, I believe, we can do much more with serum treatment than we have done heretofore.

Dr. H. P. Greeley, Madison, Wis.: This symposium has brought out the fact that pneumonia is, first and foremost, an upper respiratory tract disease. The question which I want to ask is, In what proportion of cases in the epidemics at the cantonments was the upper respiratory tract the seat of an acute inflammation? Dr. Capps has shown conclusively the value of masking in the prevention of pneumonia. Is local treatment of value in the preliminary stage of upper respiratory tract inflammation, the stage of invasion? Can any antiseptic local treatment be employed as a prophylactic?

Dr. Albert R. Trapp, Springfield, Ill.: I have often observed infected teeth and tonsils antecedent to pneumonia. These chronic infections increase the susceptibility and decrease the resistance to pneumonia. In treatment it would seem wise to combat these infections. Another thing I should like to have seen taken up is the viscosity of the blood. Wright has spoken of the citrates as diminishing the viscosity of the blood. It would seem that this could be tried out.

Dr. Charles N. Lovewell, Fort Snelling, Minn.: I have had somewhat the same experience at Snelling as you did at the other camps. We are located near the University of Minnesota, and one of the things I have been grateful for since coming into the service is the fact that we were so assigned. The men there have been exceedingly kind to us in confirming some of our work, and because of the help they have given us we have been able to do better work than we otherwise could have done. In our work on pneumonia we have been able to classify the cases according to types. We had a comfortable, satisfactory time with our pneumonias in October, November and December. About the 1st of February troops from Kelly Field were sent to us, and then our troubles began, for with them came a type of pulmonary disease I had seldom seen before. Major Miller spoke about the great variance in the physical findings. It filled me with a great deal of satisfaction and, I declare, I felt better when I realized that others, and men of skill and ability, should be annoyed by the difficulties presented in arriving at correct diagnoses from their physical signs. We found every variety of physical sign disproved at necropsy. We found apparent empyema disproved by the surgeon going in and finding no empyema there. The pleuritis due to streptococci was associated with an exudate of gelatinous material which we have examined at necropsy and found by squeezing to be full of pus, although it would appear to be free from fluid. We have at the present time in our hospital fifteen cases of streptococcic pneumonia followed by empyema. Some of them, over half of them, have been in the hospital since March 1. Among the patients that are not there now, some having been discharged and some having gone to Fort Bayard, we have noted quite a large percentage of cases developing tuberculosis. I have not heard that mentioned here this morning. There is another thing that impressed me very much, and that was the apparently almost simultaneous occurrence of suppurative peritonitis with empyema, simulating appendicitis and pneumonia at the same time. We have made the mistake of operating in one of these cases, in which we found that condition. We have had some patients die of severe toxemia within an hour of their admission to hospital in whose chests we were unable to satisfy ourselves that there was any amount of pus, and in the abdomen we have found up to 200 to 300 c.c. of fluid, a most distressing condition for anybody who tries to make a diagnosis.

We used the commercial serum at first, although we found later that the serum had little or no agglutinating power against Type I. We gave our patients standardized tincture of digitalis, and in the last series of thirty cases we used the autolyzed pneumococcic antigen prepared by Rosenow, and I believe that, while the epidemic has lost its virulence, the antigen has markedly affected not only our mortality but the incidence of the crisis in the true cases of pneumococcic infections.

Dr. Edward F. Wells, Chicago: The paper is of great and timely interest. The principle of protecting other persons from contact with infective organisms thrown into the air by pneumonia patients is clearly beyond question; the details may be adapted to meet the varied requirements, and have been mildly and incidentally mentioned at intervals during the past three or more decades. Recognizing the fact that the pneumococcus, once it obtains lodgment in the nose and throat, remains a permanent potential danger to its host, and that it may be conveyed to others by air which has been contaminated by coughing and sneezing, I have long, and frequently, advocated the placing of signs in public places to the effect that "In coughing or sneezing hold your handkerchief before your mouth and nose." I have no doubts as to the widespread beneficial prophylactic results which would follow the general adoption of this measure, and desire again to recommend its employment.

Dr. Edward E. G. Franing, Camp Dodge, Iowa: I was at Camp Dodge from the beginning and saw this whole epidemic. We were going along smoothly until all at once we were thrown into a sort of a convulsion by an epidemic striking us. There was nothing important about pneumonia before this epidemic came on. It seemed that we had said everything about pneumonia, but we found that there was a great deal to say. We are classifying pneumonias. We have divided them into two classes. One is the old-fasioned pneumococcus pneumonia and the other is the streptococcus pneumonia, which causes an interstitial type of disease. I am on the surgical side at Camp Dodge. We had some infections in our hernia work and in some cases of chronic appendicitis. We did everything we could to stop those infections, but we did not succeed. After a short time we were able to put the dirty work in one pavilion and the clean work in another place, and after that we had no more infections, showing that the infection was general throughout the hospital.

We had cultures made of the throats of the twenty surgeons on the service and found that about 18 per cent. had streptococci. The *Streptococcus hemolyticus* was present in probably 15 per cent., and there was one man who had the short-chained streptococcus—the nonhemolytic streptococcus. The point I want to make is that some of you will have those same germs in your own throats, and when an epidemic comes the percentage of these streptococci increases. The streptococcus was found in 60 or 70 per cent. of these sore throats. Any infectious disease will increase the streptococcus flora in the throat, so that it is no wonder that these streptococcus infections increase in the measles cases.

We could do necropsies. We found that those sore throats, the ulcerative throats, were accompanied by very red congested tracheas and bronchial tubes and interstitial pneumonias. A very simple streptococcus pneumonia resolves itself very easily, but at the top of the wave it is more severe, the infection is more virulent, more of the lung is involved.

The worst complication we had was empyema, and it was my misfortune to operate on nearly half the cases. Practically all those empyemas got well until the epidemic struck us, and then the death rate of the empyemas went up, in spite of any operative procedure. At the end of the wave, or when the wave was breaking, the death rate dropped right down, showing that any operation we did in those virulent cases was of no avail. It made no difference what operation you did, when the pneumonia was on the decrease the wave of death rate went down. So that we have to be very careful in deciding on the kind of treatment.

DR. GRANVILLE N. RYAN, Des Moines: It is our experience that you will get a favorable result in using glucose intravenously in the presence of an approaching coma or a dry tongue that is evidence of a dehydrated condition of the general system. It has been our experience that even a 10 per cent. solution of glucose has given very good results. We have added sodium bicarbonate in a 5 per cent. solution not only in pneumonia but in any dehydrated condition of the system or acidosis. I have not used glucose in 25 per cent. solution. In a delirious patient, instead of using opiates, try glucose, either alone or with sodium bicarbonate. You can make many of these patients more comfortable and, besides, these injections have a nutritive value.

ACUTE MASTOIDITIS AS A COMPLICATION OF INFECTIOUS DISEASES

BASED ON A STUDY OF ONE HUNDRED AND TWENTY-THREE CASES IN THE BASE HOSPITAL, CAMP SHELBY, MISS.*

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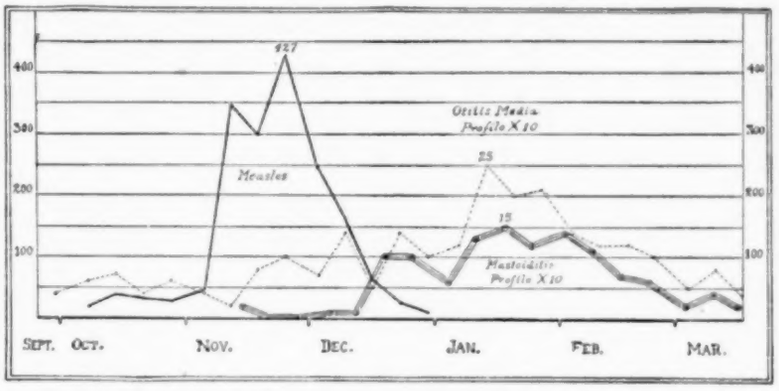
During the past winter the southern Army camps seem to have been invaded by a widespread streptococcus infection, expressing itself somewhat differently here and there; but in its most virulent form, and with highest mortality, in the shape of an involvement of the lung or pleura or both by the *Streptococcus hemolyticus*.

Camp Shelby was no exception to the general rule, but for unexplained reasons, which the epidemiologist must elaborate for us, the infection was not of the severest type, as there occurred only about 300 cases of pneumonia and thirty-five cases of empyema. However, in studying the streptococcus cases as a whole, a striking variation from the general rule is at once apparent, in that, among the empyemas, the hemolytic streptococcus is not the prevailing agent of infection. While there are a few due to this type of streptococcus, by far the larger number, as shown in the study by Captains Todd, Moore and Zingher, are due to a streptococcus of the *S. viridans* group. There have been a considerable number of patients having streptococcus infections of organs other than the lung and pleura, and when one glances over this division another exception is evident, in that there is a large number who suffered invasion of the middle ear and mastoid. It is this group that constituted our peculiar problem. By itself, this cannot be considered as an entity but as a curious phase of the broad streptococcus problem; and as one phase only of that larger question do I propose to deal with it.



Curve designed to show measles, otitis media and mastoid admissions to the hospital by weeks. The otitis media purulenta and mastoid scales bear a ratio to the measles scale of 10: 1; i. e., to read, substitute the numbers 10, 20, etc., for 100, 200, etc. The numbers at the acme of each curve indicate the largest total admissions for one week.

In all, 123 soldiers developed acute mastoiditis of one or both sides. Invariably there was a preceding middle ear involvement, though in several cases the invasion of middle ear and mastoid had the appearance of being synchronous, so rapidly did the infection mature.

It was a common occurrence that a patient complained in the night of earache, and the next morning was found to have a reddened, bulging drum, which would be opened at once. Mastoid tenderness was an accompaniment of the middle ear symptoms, and the second morning, the tenderness persisting, and the temperature remaining high, even with free drainage, the roentgenogram would reveal a cloudy mastoid, leukocytes would be high, and at operation within forty-eight or seventy-two hours of the onset of the first symptoms, an extensive involvement of the mastoid with necrosis and thick pus would be found. Others of our cases were slower in onset; there were some in which we felt that we had not attacked the middle ear early or vigorously enough; but so many developed rapidly right under our eyes, despite the promptest care in the shape of paracentesis and roentgen examination of the mastoids, that we could not escape the conclusion that we were dealing with a highly virulent organism which had a definite predilection for these tissues.

Turning now to the relation of this "epidemic" of mastoiditis to preexisting diseases in the camp, our attention is first attracted to the outbreak of measles. The graphic chart shows that the mastoid cases occurred mainly in the period from December 15 to February 1. The curve of the measles epidemic begins in October, reaches its height in late November, and declines abruptly in January. The curve of the otitis media and mastoid cases follows this rather graphically. The otitis media curve here shown represents 240-odd cases. This number must not be misunderstood to represent the total number of otitis media purulenta cases in camp. It gives merely those cases treated in the wards of the base hospital and does not include either the cases treated by the ear clinic or at the regimental infirmaries, which never entered the hospital, and of which we have there no record. Consequently it does not represent, nor is it intended to represent, anywhere near the total number of otitis media cases from which the mastoid series developed. It is merely put in as exhibiting in a general, but fairly accurate way, the determination of the curve of the entire group of middle ear infections. It must be remembered that December and January were the months of the greatest incidence of all the acute respiratory affections, and these too, as we shall see, played a most important part in the development of mastoiditis.

Table 1 shows the relation of the mastoid cases to the various diseases that preceded them immediately

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

enough to be given credit as etiologic factors. Forty-four followed measles, either directly or within a month after discharge from the hospital, returning with a history of continued cough or cold since the measles attack; eleven followed bronchitis, eleven followed tonsillitis, six complicated mumps directly, seven acute colds, and other patients had pneumonia, scarlet fever, erysipelas, etc., immediately preceding the mastoid infection. In forty-three, owing perhaps to incompleteness of the hospital records, we have nothing but a history of otitis media as the antecedent disease. Nevertheless, it is a fair assumption, I think, that a large number of this group were due to acute colds; but as our histories give no other cause than otitis media purulenta, I have put them in a class by themselves.

We see, then, that measles played a very important part in the mastoid "epidemic," being responsible for 36 per cent. of the cases. As I have just pointed out, probably a greater number were due to respiratory affections than shows here, though we have a definite history of it in only 28 per cent. of cases, regarding the mumps and scarlet fever cases as of the respiratory type. Mumps falls into this category, I believe, because a very considerable number of these patients had a complicating bronchitis, often quite severe, and in several going on to the development of pneumonia.

There were a few cases that developed so rapidly as to make it seem almost that the infection of the

TABLE 1.—ANTECEDENT DISEASES IN ONE HUNDRED AND TWENTY-THREE CASES OF ACUTE MASTOIDITIS

Measles	44	Mumps	6
Respiratory diseases	28	Scarlet fever	1
Otitis media	43	Erysipelas	1
		Total	123

mastoid cells was primary, and raised in our minds the question of hematogenous infection. It is hard to believe that this is so, for the pathway from the nasopharynx through middle ear to mastoid is too obvious. I will cite one case which illustrates what I mean, and though an extreme instance, it pictures quite graphically the manner in which many of our cases behaved:

W. S. H. (Reg. No. 5798), aged 25, was admitted, Jan. 22, 1918, to the base hospital with the diagnosis of measles. The disease ran an ordinary course, only moderately severe, and there were only mild bronchitis symptoms. Convalescence was satisfactory

February 2, the patient was out of bed for the first time, and seemed very well.

February 3, he was awakened during the night with pain in the left ear, which kept him awake the remainder of the night.

At 10 a. m. the patient seemed very ill. He was delirious; the temperature was 102; the left ear drum was bulging and tense. Paracentesis was done under light anesthesia, which was necessary on account of the delirium.

At 2:30 p. m., tenderness over the mastoid was still marked. Delirium continued; there was some rigidity of the neck and a moderate Kernig's sign on both sides.

At 3:30 p. m., roentgenoscopy revealed the left mastoid cloudy.

At 4:30 p. m., operation disclosed extensive involvement, with necrosis and thick pus throughout the mastoid cells. The bony wall of the lateral sinus was found already broken down and the sinus bathed in pus. A culture showed the *Streptococcus viridans*.

February 6, the patient died. On removal of the skull cap at necropsy there was seen a thick, purulent mass under the pachymeninges on the left side of the brain from the mid-frontal back to the posterior lobe, from the midsulcus down to the middle fossa, the point of greatest quantity being just above the left mastoid region.

Not only is this case characteristic of the rapidity of onset of a good many of these infections, but it illustrates the promptness with which the surgical staff cooperated with us and got at the cases.

Table 2 shows some of the most interesting features of our problem. First, it gives the bacterial incidence of the epidemic. Of the 123 acute mastoids, eighty-one, or 66 per cent., returned positive cultures. Cultures of the middle ear have been disregarded because of the frequency of contamination, and these eighty-one represent cultures taken from the mastoid pus at

TABLE 2.—RELATION OF ANTECEDENT DISEASES AND THE BACTERIAL INCIDENCE AMONG ONE HUNDRED AND TWENTY-THREE CASES OF ACUTE MASTOIDITIS

Organism	Cases	Deaths	Following	Antecedent Diseases	Cases	Deaths
Streptococcus viridans	29	7	Measles..... 5 Measles and mumps..... 1 Otitis media purulenta... 1	Measles.....	27	9
Streptococcus hemolyticus	5	3	Measles..... 1 Mumps..... 2	Respiratory diseases.....	12	0
Streptococcus and staphylococcus	17	1	Measles..... 1	Otitis media purulenta....	16	1
				Mumps.....	2	2
				Scarlet fever..	1	0
				Erysipelas.....	1	0
Streptococcus and miscellaneous organisms	8	1	Measles..... 1 12		59	12
Staphylococcus aureus	13	0		Measles.....	3	
				Respiratory diseases.....	3	
				Otitis media purulenta....	7	
				Mumps.....	0	
					13	
Miscellaneous organisms	9	0		Measles.....	2	
				Respiratory diseases.....	3	
				Otitis media purulenta....	3	
				Mumps.....	1	
					9	
Culture negative or not taken	42	0		Measles.....	12	
				Respiratory diseases.....	10	
				Otitis media purulenta....	17	
				Mumps.....	3	
					42	
Total.....	123	12			123	

the time of operation, and give an accurate picture of the causative organism. Considering, then, the eighty-one cases returning positive cultures in a group by themselves, and disregarding for the moment the forty-two cases in which either no culture was made or the culture was negative, we see that the streptococcus is concerned with fifty-nine, or 73 per cent., of the eighty-one. The *Staphylococcus aureus* in pure culture is responsible for thirteen cases, or 16 per cent., and a miscellaneous group of organisms, usually in combination, for the remaining 11 per cent.

Thirty-four of the fifty-nine streptococcus cases were in pure culture. Five were the hemolytic streptococcus, and twenty-nine were proved or probably *S. viridans*. I say probably, because in the early days of the outbreak, with the hospital overwhelmed by the work entailed in its sudden expansion to meet the

measles situation, the laboratory often reported the *S. viridans* cases simply as streptococcus; but they assure me that all these were *S. viridans* cultures, and the analogy with the empyemas, which were worked out later, and have proved to have a large preponderance of *S. viridans* over hemolytic infections, is very striking. I realize that this fact vitiates our statistical study to some extent, and many may be unwilling to accept it as an actual picture of our *S. viridans* infections. There is little doubt in my mind as to the morphology of this group; but in fairness the facts must be stated, that one may be able to accept or reject my conclusions according to one's own judgment.

Captain Zingher, in his report on the bacteriology of the empyema cases occurring at Camp Shelby, thus describes this organism:

> The *Streptococcus viridans* isolated from a large number of the cases of empyema occurring in this camp produces on blood plates rather large, moist colonies, resembling somewhat those of the *Streptococcus mucosus*. This appearance of the colonies is most marked at the end of twenty-four hours. At the end of forty-eight hours, these colonies become flat and dry. The size of these colonies is in striking contrast to the small pin point colonies usually produced by the ordinary *Streptococcus viridans*. The blood medium is turned slightly green, especially where the colonies are numerous. There is no evidence of hemolysis. In broth cultures the organism produces a sediment, which consists of very long convoluted chains of cocci. The supernatant fluid is clear. The organism has no capsule and is not soluble in bile. It does not ferment inulin. The morphology of the organism is interesting. When grown on a solid medium the cocci are generally uniform in appearance; the organism shows, however, a tendency to polymorphism, many of the cocci appearing unusually large, oval or rod shaped.

Of the other streptococcus cases, seventeen were due to a mixed infection with *Staphylococcus aureus*, and eight to a mixture with miscellaneous organisms—the pneumococcus, influenza bacillus, etc.

The deaths from mastoid infection numbered twelve, and all occurred in the streptococcus group; seven in the *S. viridans*, three in the hemolytic, and one each in the staphylococcus and miscellaneous subgroups. These patients all died of a complicating streptococcus meningitis, proved by culture from the spinal fluids and at necropsy. Again, eight of the twelve who died had an antecedent measles infection; one had measles only a month prior to readmission for mumps, and developed his acute mastoiditis within a few days after entering the hospital. Of the others, two had mumps, and the twelfth entered with merely a history of otitis media purulenta. This constitutes a striking argument for the severity of the measles-streptococcus complications.

In addition to these data, this table is arranged to show the relation of the antecedent disease to the various bacterial groups. Thus we see among the streptococcus cases that twenty-seven complicated measles, twelve respiratory diseases, sixteen belong to the otitis media purulenta group, and if these are classed with the respiratory infections, it gives this section an equal preponderance with the measles numerically. But in the matter of virulence the latter class is emphatically the leader.

Among the less virulent bacterial groups the balance is overwhelmingly in favor of the otitis media purulenta-respiratory cases: the staphylococcus appearing in three measles patients to ten of the latter cases, while the miscellaneous organisms show two measles to six otitis media purulenta-respiratory cases.

The warning here seems quite evident that when measles is abroad, streptococcus complications are to be expected and conversely, that all complications of measles are likely to be more severe than similar complications of other infections. Measles cannot be classified as a respiratory disease. Rather it is a primary entity by itself, with secondary respiratory manifestations, and must be clearly separated from the large group of primary respiratory infections.

Another fact of interest is shown in Table 2. In other camps the *Streptococcus hemolyticus* has been the dominant organism the past winter, and has largely been a factor in complicating measles. But in our five cases of this type, only one patient had an antecedent measles, while one case followed otitis media purulenta, two followed mumps, and the fifth developed at the height of an erysipelas. In other words, out of our twenty-seven measles-streptococcus cases, only one showed a hemolyzing streptococcus. The proportion of deaths in this group was very high, three out of five.

TABLE 3.—DISTRIBUTION OF STREPTOCOCCUS CASES THROUGHOUT CAMP

Organization	Cases of Mastoiditis	Cases of Empyema	Total
149th Inf.	20	3	23
150th Inf.	21	5	26
151st Inf.	9	5	14
152d Inf.	15	5	20
137th F. A.	15	1	16
138th F. A.	1	0	1
139th F. A.	9	4	13
137th M. G. Bn.	6	1	7
139th M. G. Bn.	3	0	3
76th F. A.	1	1	2
A. R. D.	1	1	2
B. H., M. D.	1	1	2
113th Eng.	5	2	7
113th F. S. Bn.	2	0	2
113th Sup. Tr.	3	0	3
113th Amm. Tr.	4	0	4
129th Ord. Dep.	1	0	1
38th Div. M. P.	1	0	1
38th Div. Hq. Co.	1	0	1

Table 3 shows the distribution of the cases throughout the various regiments in camp to have been fairly general, corresponding rather uniformly in this regard to the pleural-streptococcus infections. No organization seemed to suffer disproportionately.

CONCLUSIONS

Imperfect as this study is in many respects, the following conclusions seem to me justified from the facts and analogies presented:

1. The Army camp in question appears to have suffered this past winter an "epidemic" of acute mastoiditis.

2. This exhibition of mastoid infections is only one expression of the general streptococcus incidence in the camp.

3. The latter streptococcus invasion, in turn, is but a sideshow in the very widespread wave of streptococcus disease throughout southern Army camps.

4. It is peculiar in two points: (*a*) The dominant organism is the *Streptococcus viridans*, and not a hemolyzing streptococcus, as appeared elsewhere; and (*b*) its chief expression is in the form of an unusually severe involvement of middle ear and mastoid tissues.

5. Measles played a prominent part in giving the streptococcus a start in its work, and stands by itself as an etiologic factor in the development of the severer types of mastoiditis.

ABSTRACT OF DISCUSSION

Dr. Robert H. Fowler, New York: If it were possible for you to enter the "Mastoid Ward" at Camp Shelby as it appeared when I first saw it last December, you might well be surprised. Every patient had his head swathed in the gauze turban which connotes mastoid operation. Several patients had attained special distinction; they had had a double mastoid operation. The cases continued to multiply. The staff was busy day and night through January and February, in the effort to stem the tide of what is fairly described as an epidemic of mastoiditis. Fresh cases were sent to the hospital constantly. One man developed mastoiditis in the ward where he had helped as orderly to dispose of the waste gauze for the otitis patients, and a member of our own medical staff developed mastoiditis of the fulminating type. It is enough to make a thoughtful man ponder when a thing so extraordinary, so unheard-of, is seen. An average of two new patients with mastoiditis were admitted daily over a long period of weeks and there was presented in this series the cumulative evidence of the presence of a virulent organism; an organism that was communicable, and that had a specific tendency to affect such tissue as the mastoid cells.

The best results were obtained under these conditions by doing a prompt paracentesis in the acute otitis cases, and an early mastoid operation when there was purulent mastoiditis, besides taking special precautions against the infection spreading in the hospital.

The curve in the chart representing the number of cases of mastoiditis fell rapidly in the latter part of February to what may be termed a normal level and since that time there have been very few cases. A definite proportion of the patients presented a different type of infection from that seen in civil life, in that it was more communicable and that the mastoiditis was more quickly followed by complications. It seems that once an epidemic has gained headway in the military encampments the causative organism shows increasing and unwonted virulence. Several of the patients developed streptococcus meningitis which failed to respond to surgical treatment, but this did not occur where the cases were seen early in the course of the disease. It is probable that with a more complete understanding of the factors which tend toward such epidemic conditions there will be found valuable means with which to combat them.

Dr. Arthur A. Small, Chicago: It is a remarkable sight to see ward after ward of cases of mastoiditis following measles and streptococcus meningitis. From the standpoint of the medical service the interesting thing was this: Many cases of mastoiditis developed in the pneumonia cases, and those mastoids gave no sign objectively or subjectively of trouble with the mastoid cell but were found postmortem. At the commencement of our service we were undermanned and overcrowded, so that the cases could not be looked at so carefully as they were later, and we also found that otitis media in pneumonia also developed with very little pain and with practically no pain until a rupture occurred, so that now that we are better manned there are standing orders that in all these cases of pneumonia the ears must be examined daily in order to prevent acute suppuration of the middle ear.

Another important feature is the occurrence of meningitis. Patients with mastoiditis would be operated on, a perfectly clean operation being done, and then basilar meningitis would develop three or four weeks after the mastoid cells had been cleaned out thoroughly.

Dr. Walter E. Scott, Adel, Iowa: The cases discussed resemble mastoiditis as found in children. Very frequently in children the first evidence of a mastoid trouble is indicated by the ear standing out from the head. Perhaps the otitis media has been overlooked and there has not been any pain to indicate mastoiditis and the first symptom noted is the ear standing out from the head. Such a rapid and virulent form may be due to the fact that there is no acquired immunity, as children have not battled with the streptococcus or the germs in question as have adults. That would indicate that we had in the soldiers either an increased virulence of the streptococcus or a fertile soil due to the measles. Is it not likely that the middle ear and the mastoid cells contain bacteria normally, as do the nose and mouth, especially in exceedingly dry weather such as we had this winter, and that these infections and infections of all mucous membranes are more apt to take place? Again, I might simply mention the fact that the eruption of measles occurs on a mucous membrane as well as on the skin, and that the predilection of these structures may be due to the fact that the lining of the mastoid cells are related to the mucous membrane structures.

Dr. John B. Potts, Omaha: I was in Camp Shelby during the latter part of this epidemic. You will remember that the chart here showed the decline had become quite marked at that time. Most of the cases I saw developed with marked suddenness and a lot of pain. I mention this to draw another distinction between the cases in the other camps and the *Streptococcus viridans* cases at Camp Shelby. At this time, by a systematic method of having all suspicious cases reported at once, and in addition making thorough inspection of all the wards in the hospital daily we were able to see all cases developing there early. Paracentesis was done very early. A reddened slightly bulging drum was an indication for paracentesis. In many of the cases not only fluid but gas was present. My opinion of the basilar meningitis cases that occurred in Camp Shelby is that we had a septicemia either coincident with mastoiditis or else secondary to mastoiditis. The early conservative mastoidectomy done was the rational treatment and the means of saving many lives.

Dr. Abraham Zingher, Camp Shelby, Miss.: During the past six weeks I had an opportunity to study these streptococcus cases, and I was able to isolate the same type of organism not only from empyema cases but also from infected mastoids and surgical wounds. There were local infections in which I was able to isolate a similar strain of *Streptococcus viridans*, which differed considerably in its cultural characteristics from the type usually seen in cases of subacute endocarditis and in cultures taken from the tonsils. On blood plates the organism produced at the end of 24 hours large, irregular, moist colonies, which became flat and dry at the end of 48 hours. The colonies at first resembled closely those of the *Streptococcus mucosus*. Clinically the organism did not seem to have the same virulence as the hemolytic streptococcus, which caused such a high mortality from pneumonia and empyema in many of the camps last winter. At Camp Shelby the mortality from empyema was comparatively low, only 10 per cent., showing that the organism producing a majority of these infections had relatively only a mild virulence. There seemed to be a general distribution of this type of *Streptococcus viridans* throughout the camp, giving rise to middle ear infections, mastoids, pneumonias, empyemas and wound infections. One case which I have particularly in mind was that of an amputation of the leg. The patient died. A blood culture taken before death showed the same type of *Streptococcus viridans*, which was also isolated from the suppurating amputation wound. At the necropsy we found an extensive infection of the serous membranes of the chest, both pleurae and the pericardium being filled with pus. There was also a substernal abscess. There were no evidences, however, of a pneumonic process. The pus from the pleurae and pericardium showed the same type of *Streptococcus viridans* as was isolated from the blood culture.

Dr. George H. Lathrope, Morristown, N. J.: I am glad Major Small brought out the question of the extension into the meninges. The pathway that infection will take from the throat into the meninges is not yet found. The pathway from the throat into the middle ear is probably a direct extension from the throat by way of the eustachian tube into the middle ear and then into the mastoid. I should question very much, though I don't know how it is going to be proved one way or the other, the idea which Dr. Scott brought forward that the infective organisms lie in the mastoid in a quiescent condition. From what I have seen of infections following an acute throat trouble I am inclined to think they usually come on fairly suddenly and in a definite sequence. From that I should argue that when organisms get into the mastoid they start up trouble or die out at once. The question of hematogenous infection of the meninges is one which we have

always to bear in mind; or hematogenous infections anywhere. We are too apt to make all infections direct extensions through neighboring tissues, and I don't believe that is always the case by any means. We had two or three cases, one in particular which I recall of basilar meningitis, when we could find nothing but an infection of the ethmoid cells, and there was not, as in some of the mastoid cases, any particular expression of the meningitis in the neighborhood of those ethmoid cells.

PHARMACOLOGY IN THE WAR*

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It is the problem of the war for a country to meet and to defeat not only the human enemy, but the forces of nature. Severe necessity arises in many forms, in many new garbs. That, however, brings out one of the compensations of the war: Necessity is the mother of invention, of conservation, of efficiency. The happy-go-lucky ways of peace no longer suffice. Every form of human endeavor is forced to the supreme effort.

Let us see what part the subjects of pharmacology and therapeutics have played and can play in the struggle. What in particular our own country has done and can do in this field.

The very opening of the war emphasized the problems of infections. The brilliant successes of serum therapy have robbed infections of much of their terror; but there was still far too much that remained unsolved. There was still a large scope for improvement in antiseptics. Everyone is familiar with the notable advances in this direction made by the Carrel technic and the Dakin hypochlorite and chloramin compounds. Both inventors are closely identified with our country. Other promising antiseptics have also been introduced, and may lead to further achievements in the conquest of infections. I need only to refer to the acridin dyes, and to the new mercury compounds introduced by Schamberg. The invention of new local antiseptics may also lead to further developments in the field of systemic chemotherapy.

Tetanus has been conquered by the prophylactic inoculations. In the early days of the war, however, these were not always feasible; and who knows when similiar emergencies may again arise? In such cases, the terrors of the disease were enormously mitigated, and according to the German reports at least, lives were undoubtedly saved, by the use of the magnesium injections. Their efficiency was essentially discovered and made safe by an American physician, Dr. S. J. Meltzer.

Almost equal in importance to the problem of infections was the problem of prompt and safe anesthesia. There will, perhaps, always be differences of opinion as to the relative value of the various anesthetics. There can be no doubt, however, that for certain purposes at least, nitrous oxid has peculiar advantages. Its extensive acceptance by the allied armies is largely owing to American influence.

There is still room for many improvements in anesthesia; and there is no doubt that pharmacology can contribute materially, not only to the invention of new anesthetics, but to their judicious selection and efficient administration, for the various purposes.

I have chosen these examples rather at random from others that might be named, to illustrate the task of pharmacology to meet old problems, modified quantitatively rather than qualitatively by the established conditions of warfare.

The later introduction of flame and gas warfare raised a large number of pharmacologic problems. The popularization of the wax treatment of burns emphasized the abuses engendered by secrecy in medication. It was found that the complex and secret foreign preparation was in no sense superior to a suitable grade of simple paraffin. It could also be shown that practically nothing could be expected from the addition of antiseptics and other agents to solid paraffin films. While negative results are not as desirable as positive results, they should serve to prevent useless clinical experimentation, and thus permit the direction of investigative energy into more useful channels.

Gas warfare has created a new field for applied pharmacology. The chapter of volatile irritants was suddenly raised from a minor to a major importance. The loose generalities that had been current would not have furnished the detailed knowledge necessary for the vital problems of military defense and offense.

Another very important group of problems was created by the shortage of many drugs, due to the increased demand for certain remedial agents under war conditions; the use of basic materials in munition manufacture; and especially the general interference with trade.

The uncompromising realism of the war suddenly awoke us to the fact that internationalism was as yet a dream. In this dream, most nations had overdone the principle of the division of labor, so that they had become dependent on others for the supply of many of their vital needs, and thus had sacrificed the essentials of independence to the fetish of economy.

Through the principle of internationalism, the business of introducing and manufacturing new chemotherapeutic agents had become largely a German industry. When we were shut off from this industry by the war, the first effect was a general sense of helplessness. Soon, however, this was replaced by the reaction of effort. There was created a great opportunity, as a challenge to the nation to ascertain its real needs, and to supply its deficiencies from its own resources.

Until sources of supply could be found or devised, it was necessary to do without many of the drugs to which we had become accustomed.

This may not be as great a misfortune as many would have supposed. The demand for many drugs was an artificial one, fostered by commercial enterprise, as had often been pointed out. What years of preaching could not accomplish in the way of testing out a restricted materia medica was accomplished by necessity at one stroke. As was to be expected, the results show that many of the drugs could be spared without great disadvantage, and some with actual advantage. Nearly every physician has found it necessary to "give up" some of the drugs that he prescribed before the war; and nearly every one must have noticed that the return to the older standard drugs was, in many cases, not detrimental to the patients. It is to be hoped that this lesson will be

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* From the Pharmacologic Laboratory of the Western Reserve University School of Medicine.

heeded, and that the war will have weeded out many of the products of commercialized over-enthusiasm. It behooves us to take care that this advantage is not lost by the introduction of equally or more worthless or unnecessary imitations and substitutes.

Great as was the need and the value of abridging the needless over-drugging, it was equally needful to supply those drugs of real value which were unobtainable because of the war, such as the organic arsenicals, and a proper selection of local anesthetics.

Here, our difficulties were due mainly to our own laws. The reason why this country could not be self-sufficient in these products was largely because the manufacturers of the drugs had been granted a monopoly, which placed us entirely at their mercy. This was due to the retention of patent laws and procedures adapted to conditions very different from those that now obtain. In this respect no other country had been so short-sighted or bound by tradition. As soon as Congress awoke to the seriousness of the situation and removed the fetters of its own making, the manufacturers had no great difficulty in supplying the legitimate needs of the country.

This advantage has been gained by emergency legislation of a temporary character. It is to be hoped that this legislation will be replaced by a carefully planned, permanent scheme of protection, so that these benefits may not be ended with the war.

VENEREAL DISEASE CONTROL IN THE ARMY*

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Venereal diseases, according to Surgeon-General Gorgas,[1] are the greatest cause of disability in the Army and present the most serious communicable disease problem of the war. In meeting this large problem, the Army is aiming to get maximum results by applying basic epidemiologic principles through sound administrative measures and controlling its methods by the statistical study of results.

EPIDEMIOLOGY

Compared with most other communicable diseases, the venereal diseases are well understood. Their causative organisms have been discovered, and the methods of transfer of infection are thoroughly known.

The three principal venereal diseases, syphilis, gonorrhea (including all gonococcus infections) and chancroid, are spread essentially by contact. The commonest manner of transfer is through sexual intercourse, and all the other ways of spread may well be regarded as incidental or secondary to transfer through promiscuous sex relations. As long as venereal diseases are prevalent there will be many infections through other methods than sex contact, for example, the transmission of syphilis from the mother to the unborn child, the spread of syphilis through kissing or by the use of common drinking or eating utensils, the gonorrheal infection of the eyes of the child in the birth canal, the infection of eyes by fingers soiled with gonorrheal discharges, and the infection of children with gonorrhea through contact with soiled objects in the household.

The problem of control is simplified by the fact that these diseases do not exist in the lower animals and are not carried by them. Neither is the transfer of infection by inanimate objects common, as the causative organisms tend to die out rapidly away from the human body.

Another important fact in the epidemiology of venereal diseases has a very direct bearing on methods of control. These diseases are spread principally by disease carriers, persons who appear to be well and regard themselves as healthy, but who are nevertheless capable of transmitting infection.

CONTROL

The methods of control of venereal diseases are essentially the same as those of other preventable diseases limited to human beings and spread by contact. We cannot include in these methods, as in some diseases, the artificial immunization of individuals, because no successful methods have been discovered.

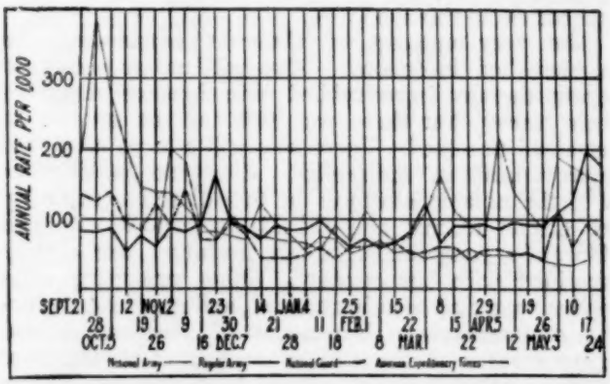

Fig. 1.—Annual venereal disease rates per thousand men in the National Army, Regular Army, National Guard and Expeditionary Forces by weeks for the period from Sept. 21, 1917, to May 24, 1918, inclusive.

We have at hand, however, methods that are capable of reducing venereal diseases to an almost insignificant amount. These methods are the prevention of infective contacts, through various measures, later to be described, and the early treatment of persons who have been exposed in spite of these measures. The method of the treatment of persons after a known or suspected exposure is illustrated by the dropping of silver nitrate into the eyes of the new-born child to insure against gonorrheal infection, and by the early, or prophylactic, treatment of soldiers after a known or possible exposure to venereal infection.

Control of venereal diseases has been totally inadequate in civilian life because public health authorities, with few exceptions, have until recently felt little responsibility for the control of these diseases, which, taken together, have no rival, not even tuberculosis, in their importance as a public health problem. They are highly prevalent, very destructive, and most preventable.

THE SIZE OF THE ARMY'S PROBLEM

In the Army, venereal diseases exceed all of the other more serious communicable diseases in the total

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Gorgas, W. C.: The Venereal Diseases and the War, Soc. Hyg., 1918, 4, 3, 39.

number of cases and the total disability caused. Figure 1, shows the annual venereal disease rate per thousand men, by weeks, in the National Army, the National Guard, the Regular Army and the Expeditionary Forces. In Figure 2, the annual venereal disease rates per thousand for the several armies are presented by months. While showing the prevalence of venereal disease in the Army, these two charts give little information regarding the results of control measures in and around Army camps. The fluctuations depend principally on the number of new troops brought into the Army from the civilian population with its high prevalence of venereal diseases. The shape of the curves is largely determined by the number of added troops examined for the first time within the several weeks or months.

There has been much unintentional misinterpretation of the venereal disease figures of the Army, owing to failure to understand the method through which the annual rate for a given week or month is obtained. All cases discovered and recorded for the first time in a given week are multiplied by 52, as an annual rate is desired instead of a weekly rate, and divided by the total number of men in thousands, to obtain the rate per thousand. Thus, if one man in a group of a thousand men was found to have venereal disease in a given week, the annual venereal disease rate for that week would be 52 per thousand, and it would be a grave error to quote the figures in such a way as to give the impression that fifty-two infected men had been discovered in the thousand men in one week.

In Figure 3 is shown the relative prevalence of venereal diseases to others of the more important communicable diseases in the Army, and it will be noted that venereal diseases, as a group, are the most prevalent of these diseases.

The burden of venereal disease is suggested also by Figure 4, which shows the percentage distribution of the more important communicable diseases in the Army and also of injuries, computed on the basis of all diseases and injuries reported. Again venereal diseases, taken as a group, head the list.

For measuring the results of venereal disease control work in the Army and in extracantonment areas, the figures of total cases recorded are of little value, as the many cases brought in by newly drafted men mask the relatively small number in which the infection was contracted after the men were in uniform. In Figure 5 are shown the annual rates per thousand men for cases contracted before and after enlistment in five National Army camps, one National Guard camp, and one department of the Army (Camps Lee, Sherman, Upton, Meade, Custer and Kearney and the Western Department). Complete figures for the full period covered are not at present available for other camps or departments, but these figures are probably representative.

The annual rate for early, or prophylactic, treatments also is shown in Figure 5. The annual prophylactic rate, when divided by 52, gives the average number of men applying for prophylactic treatment in a given week in a thousand men. When it is kept in mind that some men will apply for many treatments in the course of a year, it is evident that many men are completely avoiding exposure, and escaping venereal disease for that reason. The curve for the last few months suggests that the educational program is producing increasing results.

The amount of venereal disease contracted by the men after putting on the uniform is astonishingly small, while the amount of chronic venereal disease brought to the Army from civil life is a serious burden. The recent Army experience with venereal disease contradicts the popular impression that the boys and young men are under such influence and protection at home that they are in little danger of being exposed to venereal disease, but that in the Army they are exposed to extreme temptation and are most certain to succumb.

In fairness to the civilian population, it must be pointed out that the disease brought into the Army is the accumulated uncured disease of the newly enlisted men. These cases, some of them of years' standing, are compared in the chart with the cases freshly contracted in the Army. Accurate estimate cannot be made of the amount of venereal disease which would have been contracted if the soldiers had remained civilians, but the contrast between the old and new cases shown in the chart is so great that it seems safe to conclude that in civil life the men would have contracted much more venereal disease and would have secured many fewer cures through treatment. In any event, only a small part of the cases are contracted

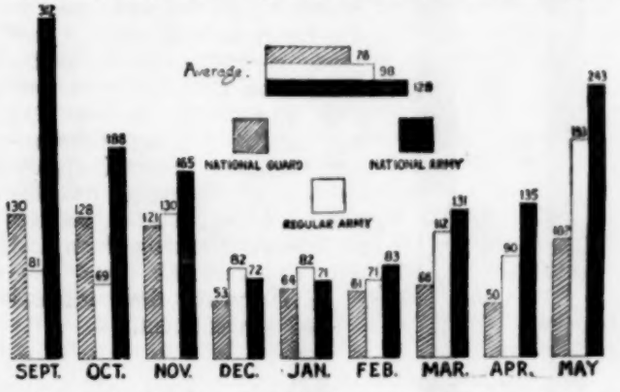

Fig. 2.—Annual venereal disease rates per thousand men in the National Guard, National Army and Regular Army by months, for the period from September, 1917, to May, 1918, inclusive and the average rates for the same period.

under Army conditions of good discipline, protection against exploitation, education, and early, or prophylactic, treatment.

Figure 6 is a cartoon prepared for use with popular exhibits. It is intended to awaken the public to its responsibility for the Army's disability from venereal disease. Less than one sixth of the venereal disease burden of the Army, according to the data in Figure 5, can be reduced by the control and protection of the soldier. The remainder can be prevented only in the communities from which the future soldiers will come. It is the aim of the Army to help create a popular demand for venereal disease control by public health officials, with the assistance of law enforcement and educational agencies.

In Figure 7 are shown data available for a short period for five National Army camps, Camps Dix, Lee, Upton, Meade and Pike. These figures show even a lower proportion of cases contracted after enlistment, about one nineteenth of the total number. The chart gives the figures separately for syphilis, gonorrhea and chancroid, thus permitting a comparison of the relative prevalence of these diseases.

In Figure 8 are shown rates for Camp Lee for venereal disease contracted before and after enlist-

ment, segregated according to colored and white troops. The relative number of white and black troops newly brought into camp each week is not shown, and therefore a close comparison between the curves is not justified; but the chart illustrates the relatively large amount of venereal disease brought by colored troops into some of our camps. Any plan for venereal disease control which neglects the problem in the colored population is shortsighted and will fail to get maximum results.

At Camp Lee, by direction of the Surgeon-General, a psychologic study was made of the white men isolated for venereal disease. At the time of this study, 12 per cent. of the negroes and 2 per cent. of the white men in the camp had venereal disease. Among these white men, 34 per cent. were unable to read or write English with sufficient facility to take the tests. In the camp as a whole, only 18 per cent. were unable to do this. The white men able to take the psychologic tests obtained a median score approximately 75 per cent. as high as that for the camp as a whole. Moreover, less than half as many of the diseased white men, in proportion to total numbers, obtained high scores, as did the white men in the camp as a whole. A low grade mentality seems to increase the probability of getting a venereal disease and keeping it. A successful campaign against venereal disease must reach persons of this class and diminish the number of infections among them and increase and improve their medical treatment.

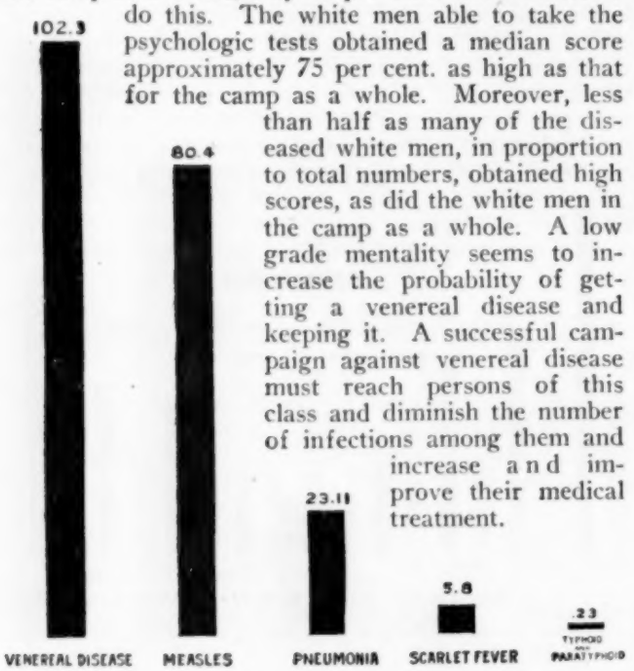

Fig. 3.—Comparison of the annual rates per thousand men for all troops in the United States between Sept. 21, 1917, and May 31, 1918, of certain of the more important communicable diseases.

VENEREAL DISEASE IN THE CIVIL POPULATION

Complete records of the number of drafted men having venereal diseases would furnish a most valuable index of the prevalence of these diseases in men of the draft age in the civil population. Such figures are not at present available, but the report of the Provost Marshal-General to the Secretary of War on the first draft showed that 4.27 per cent. of the rejections in a group of 10,000 men were due to venereal diseases.[2] From one of the National Army camps, Camp Lewis, figures were submitted showing that 3.04 per cent. of the men sent to camp were found to have venereal disease on examination on arrival at camp.

CONTROL MEASURES AMONG THE SOLDIERS

Before the present war, the principal emphasis in the prevention of venereal disease in the Army was placed on the instruction of the soldier against exposure and in the administration of the early, or prophylactic, treatment to those who had exposed themselves in spite of instruction. The Army had little success in persuading civilian communities near Army posts to protect soldiers against exploitation through commercialized prostitution and the sale of liquor. Conditions near Army camps were prone to be made worse than elsewhere by uncontrolled exploiters who sought the soldiers' money. In the present war, all are interested in the soldier's welfare, and most communities respond patriotically to any definite request of the Army for correction of conditions that would tend to demoralize or disable the fighting man. With the best possible assistance by civilians, much work would still have to be done with the soldier himself.

Within the camp the soldier is instructed to avoid exposure to venereal disease. This is done through company commanders' talks, special lectures, moving pictures, stereomotorgraph exhibits, and pamphlets. The Army film "Fit to Fight" is a moving picture drama, which is proving most effective. The soldier is given not only a strong appeal to keep himself morally clean and physically fit, but he is also further restrained from sex indulgence by information about the venereal diseases and the disability that they cause. As an additional safeguard, the men are instructed to report for the early, or prophylactic, treatment in case they should expose themselves in spite of the advice and information given them. They are told of the Army regulation requiring that every soldier exposing himself must report at the Army prophylactic station, or be subject to court martial. The soldier is also instructed that he will lose his pay while disabled from venereal disease, and will be confined to camp as long as he is infectious. Even the instructions about prophylaxis seem to reduce the number of exposures to venereal disease by impressing the soldier with the serious consequences which may follow the patronizing of prostitutes.

The early, or prophylactic, treatment is given in the camps and also at Army prophylactic stations maintained in cities visited frequently by soldiers. The prophylactic treatment record serves as a valuable index of the success or failure of the law enforcement measures in making prostitution inaccessible. The prophylactic treatment consists of the cleansing of the parts and the injection of a 2 per cent. protargol solution, or approved equivalent, and the external application of 30 per cent. calomel ointment.

It is in the soldier's playtime that he gets into trouble. Telling him what to avoid is not enough. The War Department Commission on Training Camp Activities has realized this fully. It is supplying facilities for athletics, theatricals and other forms of recreation, so that the soldier can have a good time through clean sport and harmless amusement. This work is going on within the camp and also in the nearby communities.

At least twice a month every soldier is inspected for venereal disease and other infections. If found infected, he is put under treatment, so that he can be rendered noninfectious and returned to duty as soon as possible. As a protection to the civilian community, he is restrained to the camp as long as he could transmit venereal disease. He loses his pay while disabled, and he is also tried by court martial and punished if he violates the order requiring the taking of the early, or prophylactic, treatment.

In many camps the soldier who has venereal disease is questioned as to the source of his infection, and,

2. Report of the Provost Marshal-General to the Secretary of War on the First Draft Under the Selective Service Act, 1917, Government Printing Office, 1918.

when practicable, the information is turned over to the civilian health authorities to be used as a clue in discovering venereal disease patients who need isolation and treatment. When the soldier is unable to give the correct name or an identifying description of the prostitute, the building in which the infection took place is often stated. This information helps the health authorities and law enforcement officials to detect the most dangerous venereal disease carriers, and the lodging houses and hotels that cater to them. It assists the authorities to find those carriers whose activity and

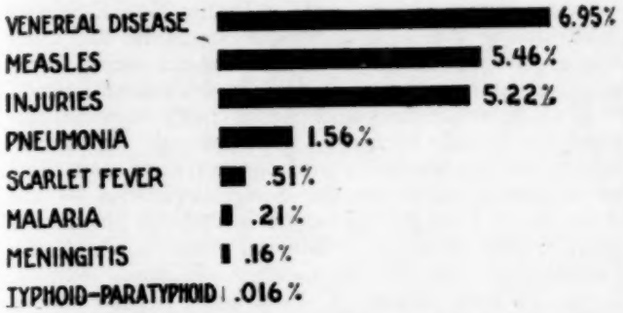

Fig. 4.—Percentage distribution of injuries and certain of the more important communicable diseases based on the total number of diseases and injuries reported, for all troops in the United States from Sept. 21, 1917, to May 31, 1918.

infectiousness are such that they are actually infecting soldiers and probably civilians—sometimes in large numbers. From the standpoint of epidemiology this method is highly important. It is similar to the finding of the most dangerous typhoid carriers by investigating outbreaks of typhoid fever caused by them, and tracing the infection back to its source. The method is selective, as it tends to pick out those infectious persons who are exposing the most people and are clever enough to be escaping the law enforcement and health authorities.

CONTROL WORK AMONG CIVILIANS

Infection of the soldier with venereal disease always involves the civilian. The greater part of the infections in our Army were contracted before the men enlisted, and the civilian alone can correct the conditions responsible. The lesser part were contracted by the soldier from civilians after enlistment, and this problem can be solved only through the cooperation of both civilian and Army agencies.

When the war began, the importance of work for the protection of the enlisted man in civilian communities near the camps was fully realized, but the importance to the Army of protecting the future soldier in his home town was not yet apparent. The War Department Commission on Training Camp Activities undertook a most active campaign to diminish the temptation of soldiers. Emphasis was placed on the repression of prostitution and bootlegging in extracantonment zones and nearby cities. The work has been of greatest assistance in the control of venereal disease in the Army and should be given much of the credit for the low rate of infection with venereal disease after enlistment.

At the present time, twenty-six commissioned officers of the Sanitary Corps of the Army are engaged in the Law Enforcement Division of the War Department Commission on Training Camp Activities, in combating venereal diseases, by means of stimulating the enforcement of municipal, state and federal laws having to do with the suppression of prostitution and of liquor selling to soldiers. In this way more than eighty red light districts have been abolished, including thirty-four outside the prescribed 5 mile zones around camps and at distances varying from 7 to 100 miles from the camps. More than 200 cities and towns of the various states have cooperated in the abolishment of districts, the more drastic enforcement of present laws, and the enactment of new legislation, especially that designed to enable the authorities to cooperate effectively with the Surgeon-Generals of the Army and Navy in protecting soldiers and sailors against venereal diseases.

There is also carried on by the Law Enforcement Division most important work with women and girls, conducted by a large number of protective workers, and also work by the Section on Reformatories and Detention homes, aimed at the provision of facilities for the isolation and treatment of women and girls having venereal disease.

In the work among women who have become infected through prostitution, effort is made to return them to society not only well in body, but trained for self-support through legitimate occupation. Some are feebleminded or incorrigible for other reasons, and for them prolonged or permanent custodial care is sought. This work is handicapped by the limited capacity of the state institutions available for the segregation of these persons so highly dangerous to the public health.

Many male venereal disease carriers pass through the courts and are lodged in prisons and jails. The men arrested for sex offenses come under the same laws and regulations as the women, and in most states may be examined and isolated if infected. A much larger group of infected men are sent to prisons and jails for other offenses, and were formerly permitted to serve their terms and go out uncured to spread syphilis and gonorrhea. Prison officials throughout the country are being interested in their opportunity

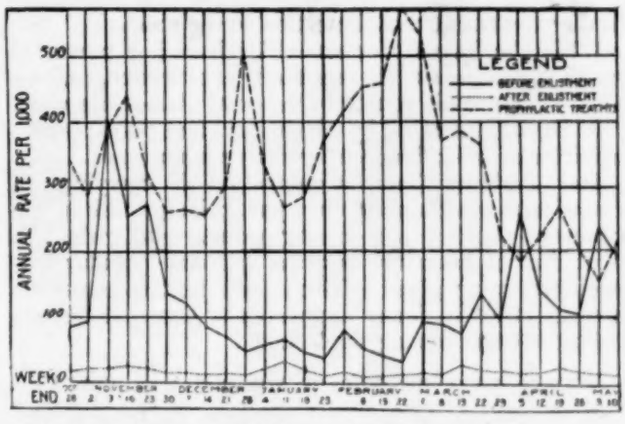

Fig. 5.—Annual venereal disease rates and prophylactic treatment rates per thousand men by weeks for Camps Sherman, Lee, Upton, Meade, Custer, Kearney, and the Western Department, from Oct. 26, 1917, to May 10, 1918, inclusive, showing the amount of venereal disease contracted before and after enlistment.

to clear up a vast number of venereal disease carriers, male and female, by proper treatment within the prisons. A great stimulus to this work was given by a recent letter of the United States Attorney-General to all United States attorneys instructing them to see that all persons arrested under federal laws for certain offenses are examined for venereal disease by the local health authorities, if they will do so, and other-

wise through special arranagement. If the diseased person is sent to prison, the prison authorities are to be notified so that treatment will be given, and if the patient is discharged before he or she is noninfectious, the health authorities are to be notified in due season,

Venereal Disease is the Greatest Single Cause of Disability in the Army
Over 5/6 of this burden was brought into the Army
1/6 was contracted after enlistment

Fig. 6.—Cartoon based on the statistics presented in Figure 5, which showed that over five sixths of the venereal disease cases in six camps and one department were contracted before enlistment.

so that they can institute quarantine and administer further treatment as a protection to the public.

While the Law Enforcement Division is a powerful health agency, as it represses prostitution, which is the most prolific source of venereal disease, its work must be supplemented by educational and public health activities of other kinds in civilian communities.

The Training Camp Commission is carrying on educational work among men, particularly those in the industrial centers, and among women and girls. A great deal of literature is going out, and popular lectures are being given. This instruction is bound to have its effect in fewer exposures to venereal disease and more cures among the infected.

COOPERATION BY PUBLIC HEALTH AGENCIES [3]

In the control of venereal diseases, we have essentially a public health problem, and the state and municipal health authorities can do a great deal to diminish their prevalence. The Surgeon-Generals of the Army, the Navy and the Public Health Service have approved a set of suggestions for state board of health regulations which are meeting general favor and are helping to establish a uniform American plan for venereal disease control. These suggestions were based largely on measures already in force in certain states and cities. They recognize that venereal disease carriers, male and female, must be controlled and cured, and that prostitution must be repressed if venereal disease is to be reduced to a minimum. They provide for the reporting of cases by office number and the quarantine of patients when necessary to protect the public health.

The Army, Navy and Public Health Service are receiving the cooperation of many agencies in venereal disease control among civilians. The Red Cross is maintaining twenty-four venereal disease clinics in extracantonment zones, and the Public Health Service is furnishing the medical personnel. States and cities are organizing venereal disease control work, often under a separate bureau or division with special funds.

In thirty-four states and one territory, venereal diseases are already required to be reported. In the following twenty-six states and one territory, according to reports received by the Surgeon-General of the Army up to June 20, the report is made by physician's office record number: Alabama, Arizona, Arkansas, California, Connecticut, Georgia, Hawaii, Illinois, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, New Mexico, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Washington, Wisconsin and Virginia.

In the following eight states, the report is made by name: Colorado, Florida, Indiana, Maryland, New Jersey, Ohio, West Virginia and Vermont.

In the following twenty-three states and one territory, these diseases may be quarantined by the health authorities when necessary to protect the public health: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Hawaii, Illinois, Indiana, Iowa, Kansas, Louisiana, Massachusetts, Minnesota, Mississippi, New Jersey, New Mexico, New York, Ohio, South Carolina, South Dakota, Texas, Washington and Virginia.

In the following eleven states there are separate bureaus or divisions of venereal diseases under the state board of health: Arkansas, California, Colorado, Illinois, Indiana, Louisiana, Massachusetts, Michigan, Minnesota, New York and Ohio.

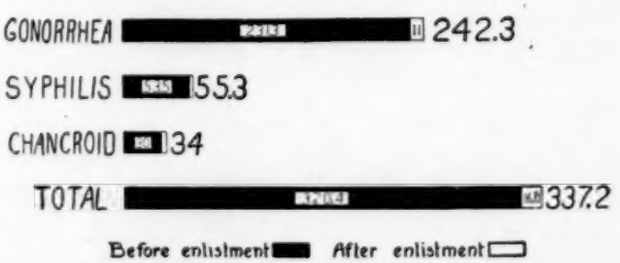

Fig. 7.—Annual rates per thousand men, before and after enlistment, in five National Army camps, Dix, Lee, Upton, Meade and Pike, for gonorrhea, syphilis, chancroid and total venereal disease, based on thirty-seven special weekly reports from March 29 to May 24, inclusive.

In the following fourteen states and one territory in which venereal diseases are reported by office number, the name of the patient is reported if he fails to continue treatment or to observe precautions to prevent spreading disease: Arizona, Arkansas, California, Illinois, Hawaii, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, New Mexico, South Carolina, Texas, Washington and Virginia.

The American Social Hygiene Association and other nonofficial social hygiene organizations are assist-

3. As this article goes to press the federal measures for assisting the states in combating venereal diseases under the provisions of Chapter XV of the Army Appropriations Act (1918) are being drawn. An appropriation of $4,100,000 is provided for medical, law enforcement and educational work in addition to approximately $3,000,000 for the continuance of the activities of the commissions on training camp activities.

ing actively in the educational work which is securing the public support necessary for success. Educational work is being carried on and venereal disease clinics are being established by various institutions and associations, as well as by health departments.

Venereal disease prevention has been greatly stimulated by the action of the United States Public Health Service in assigning officers in uniform to organize and direct bureaus of venereal diseases for state boards of health requesting this assistance. Definite arrangements for such assignments have been made with twenty-three states. In two additional states, North Carolina and Kansas, the Army is assigning medical officers to this work.

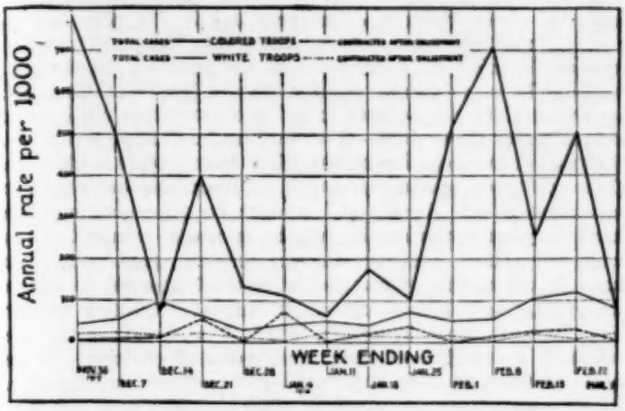

Fig. 8.—Annual venereal disease rates per thousand men, by weeks, in Camp Lee, for colored and white troops, before and after enlistment, from Nov. 30, 1917, to March 1, 1918.

Venereal diseases are at last being recognized by health departments as important public health problems. Their work will be successful if it is well administered and also based on epidemiologic investigations. If venereal disease becomes prevalent in a camp of soldiers or a civilian community, investigation should be made to ascertain the exact source and underlying conditions of that particular large number of cases. Conclusions without investigation have over and over again placed the source of infection hundreds of miles away from the true focus, and have resulted in serious errors as to the time of exposure.

It is clear that the largest results in venereal disease control in the Army will come through the work in the civilian population. This work requires the cooperation not only of federal, state and municipal health authorities, but also of the medical profession as a whole. Moreover, the support of the general public, fostered by a wise publicity, is necessary before greatest results will be achieved.

RESULTS OF CIVILIAN EFFORTS

A striking example of the result of control measures has been reported by the extracantonment officer stationed at San Francisco, and is shown in Figure 9. The upper curve shows the monthly annual rate per thousand men for prophylactic treatments in a large number of troops in and near the city. The lower curve represents the annual venereal disease rate per thousand for the same months. Infections contracted before enlistment were excluded. A number of the cases of venereal diseases, varying from 2 per cent. of the total in February to 21 per cent. in January, were also excluded because the Army records of sources of infection showed that the exposures were not related to San Francisco. Moreover, the venereal disease cases were charted more nearly according to date of infection by advancing the dates one week.

The fall in the number of prophylactic treatments and cases of venereal disease among the soldiers was coincident with active measures by the city health department for the examination of persons arrested for sex offenses and their quarantine and treatment, if infected, regardless of whether they were convicted or acquitted by the courts. Law enforcement, which was lax at the beginning of the period covered by the chart, was greatly strengthened during the first month, but was temporarily somewhat weakened in February, 1918. The decided fall in the number of prophylactic treatments and the drop in the number of new cases of venereal disease showed that there were decidedly fewer exposures. The organization of educational and recreational work among the soldiers was probably another factor in the result.

The experience of San Francisco showed plainly that large results could be obtained when law enforcement and the isolation and treatment of dangerous carriers are carried on side by side, each supplementing the other.

CONCLUSIONS

1. Venereal diseases are the greatest single cause of disability in the Army.

2. Most of the cases of venereal diseases among the United States soldiers, over five sixths of the total in units from which the figures have been obtained, were contracted by the men before enlistment.

3. Exposure of the soldier to venereal diseases is being successfully reduced by education, wholesome recreation, the enforcement of laws against prostitution and alcohol, and the discovery and control of venereal disease carriers.

4. These measures are applicable to civilian communities outside the extracantonment areas, and should be generally applied for the protection of the health of the future soldier and of the general public.

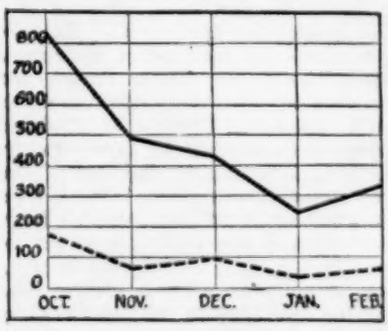

Fig. 9.—Annual venereal disease and prophylactic treatment rates for troops in and around San Francisco, not including cases contracted before enlistment and others obviously not related to San Francisco, showing results of public health measures and law enforcement. Solid line, prophylactic treatments; broken line, new cases of venereal disease.

5. Venereal disease control should be under the general direction of the public health authorities, but they should receive the cooperation of educational and law enforcement agencies, and should not hesitate to employ lawyers and other men and women trained in nonmedical lines, just as engineers are called on to remove the causes underlying waterborne typhoid.

6. In the Army, venereal disease is still further reduced by compulsory early, or prophylactic, treatment of men exposed in spite of the measures aimed at preventing such exposure.

7. The reduction of venereal diseases, as a group, forms the greatest public health problem of today and

the one which gives the most promise of solution in the immediate future. Efficient measures of prevention are known and are being demonstrated, and need only to be more widely applied.

ABSTRACT OF DISCUSSION

Col. V. C. Vaughan, Washington, D. C.: I do not see how any one can listen to this paper and learn these facts without concluding that it is ineffective to secure protection for our soldiers against venereal diseases without control of these diseases among civilians. When the Michigan National Guard was assembled a little more than a year ago in Detroit and was quartered in the armory, the buildings just across the street were occupied in part by prostitutes, and soldiers were openly solicited by them. When the Michigan National Guard, after this, was examined for transfer to the U. S. Army, it was found that a large percentage of them were infected with venereal diseases. A most unsatisfactory condition existed in Philadelphia and continued until the Secretary of the Navy actually took control of police affairs. Similar conditions have existed in Newport and Providence, R. I. The Army medical officer can control his soldiers in camp, and, to a certain extent, he can control them outside of camp. For instance, the commanding officer at camp has absolute control of his soldiers in the camp. If there is a house of prostitution in an adjacent village the commanding officer can put a guard around that house and prevent any soldier from going into it. He cannot, however, prevent any party coming out of the house, nor can he prevent any one except soldiers from going in. It is true that in certain camps the commanding officer has taken matters in his own hands and made raids on houses of prostitution. This was done at Spartanburg, S. C. I understand that it was done by the city of Spartanburg making soldiers local policemen and conferring on them the necessary authority. If it is desirable to protect the young men in the Army from venereal diseases, why should not the young men who are civilians, and, in all probability are soon to become soldiers, be protected from the same disease? Of all the camps in the United States, Pike led during the six winter months in pneumonia and in venereal diseases. Pike is located in Arkansas. There are boys at Pike from Michigan, Illinois, Iowa and other states. It seems to me that it is quite important for the fathers and mothers of those boys that they should have the same protection against venereal diseases at Pike that other sons have at Grant, Custer and Dodge. The same efficiency in the administration of all camps should be exercised. Section 13 of the draft law seems to make vigorous provision for protection of the soldiers against venereal disease in a zone about the camp. There are about seventy camps in the United States, not counting any camp with a population less than 10,000, and the zone around the camps is the United States, and federal authorities must take charge of these matters. There is only one thing to do, and that is to federalize for the time of the war the various health services of this country. What is true of venereal diseases is, in a somewhat different way, but fully to the same extent, true of other diseases. If it is proper to protect the boy in the Army from typhoid fever by vaccination, why should it not be proper to protect the boy in civilian life, the prospective soldier of the future, from the same disease by the same manner?

Dr. P. S. Schenck, Norfolk, Va.: At the request of the National Council of Defense, Norfolk was asked to do something toward the control of the venereal situation. The health department induced the city council of Norfolk to pass a series of ordinances which required that every person arrested for any cause shall go through a physical examination. These persons are in charge of the department of health until they are released. This necessitated the employment of several physicians to carry out the work. As a matter of control, I have adopted a card check system. When the person is arrested and taken into the police court, before any disposition whatever is made of the case he is subjected to a physical and bacteriologic examination. This applies to both males and females. If for any reason the first or preliminary examination is unsatisfactory, the person draws what we call a yellow card, which reads that a bacteriologic and physical examination is being made and he or she is to be held until the examination is completed. That card is attached to the mittimus, which goes over to the city jail hospital with the person, and no disposition of that case can be made by the police authorities as long as the yellow card is attached to the mittimus. When that examination is carried further, if we find that he is infected, the sheriff is given a red card. The red card is attached, in place of the yellow card, to the mittimus, and that red card will keep him in the jail hospital until it is substituted by a white card. He is put under active treatment by the physicians. We have also inaugurated a venereal clinic which is open every day in the year, but as long as that red card, which shows that that man or that woman is infected, is attached to the mittimus in the jail hospital he stays there. After a certain length of time, not less than sixty days—there is no re-examination made on a person under thirty days—if we find in the case of gonorrhea that we get two negative results taken from smears made from three different specimens and find from the bacteriologic examination that there appears to be no gonococci, a white card is given to the sheriff, and he or she is released. This card only states that we did not find the gonococci. We have in the course of erection a venereal hospital in which we propose to put these cases. We are also erecting on our city farm a home in which, after these young girls are released, we shall hold them until some disposition can be made of the case other than turning them back into the city. In the past six or seven weeks, since this has been put into effect, we have arrested approximately 800 persons, and 400 of them were infected. In the female population the girls run all the way from 11 years of age up to 56. We have had any number of 12-year-old girls. We were confronted with this situation, and it was very demoralizing to the department at first to find that we were taking young girls 12 years of age and 13 and 14, and for want of better facilities for handling them we were holding them in the jail hospital, where they were daily associating with the veteran prostitute, the drug addict and the alcohol habitué, and in order to correct that I induced our council to give us the money to build a hospital for these younger persons and remove them from that vicious environment.

Surgeon J. O. Cobb, U. S. P. H. S., Chicago: I am working on the venereal propaganda in the states of Indiana, Illinois, Michigan, Wisconsin and Minnesota in conjunction with state and local health officers. I speak to you as an optimist, though you are going to hear the pessimistic side of it. The states haven't the money, the municipalities haven't the money, and it will be a hard proposition to inaugurate a nation-wide propaganda that will stand on both feet. The state of Illinois has $6,000. In this state, at first, Dr. Drake was not very enthusiastic, but he got out and went to work in the municipalities, and now he is as enthusiastic as can be. Over in Michigan they have all of a million dollars that they can use. Naturally, Michigan is not afraid to tackle the problem. In Indiana they haven't anything. We have got to go to each town in Indiana and beg them for money and ask them to pass ordinances. They have not even the machinery for handling the question. In Wisconsin they have $7,500 and the legislature meets two years hence. They have not any machinery up there that is really worth while. Minnesota has $35,000, and they are getting under way. Now, that story is pretty nearly true of the United States. California has $30,000. Los Angeles appropriated $20,000 and San Francisco, I think, $40,000, and so it goes. The point is just this: Now is the time to strike. All these municipalities will come across, I am convinced. I was a pessimist myself when I started out, about the money side of it, but down in Indiana the towns are going to come forward and pass ordinances that are good ordinances, and they are going to start the machinery to make this a permanent movement, and that is what it ought to be. Colonel Vaughan has said that the country ought to be militarized for the venereal propaganda for the period of the war. We naturally think that is what it ought to be. The municipalities will do anything that the

Army asks to have done. Therefore, I think the movement is going to succeed.

In Indiana and Illinois and other places small bodies of troops are brought together to be sent to the camps. The venereal curve jumps right up there because these young men are having a last fling at civil life. It is astonishing what we find in these surveys. This sexual insanity of young girls and even of older women, mentioned by the gentleman from Norfolk, seems to be widespread, and is a serious problem. I wish also to call attention to the psychologic problem as affecting physicians.

Many doctors are pessimistic on the venereal question, and they are going to refuse to report certain private cases. Venereal ordinances must be of such a nature that there is no excuse for any physician not to report. Now, here is a fault in Illinois. These reports should be made to the state health office only, and never to the local health office, unless the patient fails or refuses to carry out his obligation. I am now convinced, just recently, that venereal cases should be reported by name. I will tell you why. Six of the states require the name, all the others require the name or number. In Chicago you can report by number, but you must give the address. The smaller towns report by number. Here is the objection to that, because that will go in to some local clerk and there might arise distrust on the part of the physician and patient. Indiana, to avoid that, has said that the physician must report directly to the state health officer. The report goes on a card index, and the state board will return all the records, if desired, when the case has been cured.

I have talked with a number of doctors, and some of them have said they would go to jail before they would report some of their cases. The Indiana regulation leaves no excuse for the doctor to refuse to report, as the report goes to the state and not to the local health officer. Now, then, in case this patient does not follow the instructions, then the doctor who had charge of that case must report it to the state health officer, and the state health officer will notify the local health officer to look him up, and then he is no longer entitled to secrecy. In the matter of quarantining houses of prostitution, Illinois has the best regulations. Where there is a house under suspicion, and still there is lack of convicting evidence, Dr. Drake deals with such cases effectively by means of a big red card, on which is printed in black letters, "Suspected Venereal Disease." This red card, for such cases, should be adopted by every state in the Union.

DR. C. ST. CLAIR DRAKE, Springfield, Ill.: Illinois was among the first states in the Union (I believe California preceded it) in attempting to control venereal disease. Our rules and regulations were promulgated in October and became effective Nov. 1, 1917. Experience of some seven months indicated that a revision of the rules was necessary. On May 1, 1918, we promulgated new rules and regulations which, I believe, cover every phase of the venereal disease problem. Possibly, and to some extent in some of the rules, we go a bit too far. There is one particular thing that I would like to elighten you on now, and that is our method of controlling the venereally infected prostitute. We have in our service plain-clothes investigators; two of them are men. These men are put into communities where we suspect the prevalence of prostitutes. On the strength of their reports raids are made upon the premises in which prostitution is practiced. Those raids are conducted with the assistance of the Attorney General of the state, because we find it very difficult in many instances to secure the cooperation of local officials. Most of the local officials are very reluctant in admitting that there is any prostitution in their town. When the arrested parties are taken to jail they are immediately subjected to a medical examination. Specimens for examination are sent to the state laboratory. Reports are returned very promptly to the local authorities. The judge then calls the case up and advises the prisoners of the findings in their cases and commits those who have been found to be infected to hospitals for detention and treatment, with the instruction to return the infected individuals to the court when cured. Under arrangements of that kind we have in hospitals in the state of Illinois at the present time some eighty-five to ninety infected prostitutes under treatment. One of the chief advantages of that particular method is that it places the expense of hospitalization and medical treatment on the county in which the prostitution existed, and it amounts to a very considerable sum, and tends to make the county authorities very reluctant about tolerating conditions of that kind in their county. We find that when they realize the expense that is to be imposed on them they are very keen to eliminate prostitution. We impose this expense on the county authorities under our pauper law, and practically every state in the Union has a law similar to the Illinois law, which provides that the indigent and sick found within the county shall be afforded necessary medical attention at the expense of the county; so what we are doing in Illinois in that regard can be done practically in every state in the Union. Dr. Cobb has referred to the placarding of premises. We have a provision in our rules that when an infected individual or a person suspected of having a venereal infection is resident on premises used for immoral purposes and will not consent to removal to a hospital where she may be retained for treatment, that the premises shall be placarded. In several instances it has been necessary to placard the premises and in all but one instance the placard has been up not more than two or three minutes. It is a very effective way of forcing patients to the hospital. We have taken rather extraordinary precautions to prevent the blackmailing of patients by quacks and unscrupulous practitioners of medicine. As to druggists, probably 60 per cent. of the venereally infected people obtain their treatment at drug stores. We require that druggists shall make a daily report of persons applying to them for treatment for venereal disease. In some cities, particularly at Rock Island, the druggists have responded very well; in fact, the druggists are reporting many more cases in Rock Island than are the physicians. There is a real need of standardization of these requirements, so that every state will have exactly the same requirements and so that the druggists in border-line cities, where the rules are being rigidly enforced, will not suffer at the hands of the druggists in other cities where rules are not being enforced. We are not having very much difficulty with the physicians in the state of Illinois. Wherever we get an opportunity to explain the provisions of the rules to the physicians they see that the rules are distinctly to their advantage, and we have no difficulty at all, after having the opportunity to explain in getting them to report their cases, and in a great number of instances in increasing numbers they are reporting their cases by name.

Bureau of Child Hygiene.—A report on infant mortality in Baltimore since 1829 and recommending a bureau of child hygiene to save the babies has been submitted to the mayor and Dr. John D. Blake, commissioner of health, by Dr. William T. Howard, assistant commissioner of health. The plan contemplates the abolition of the division of fumigation for diphtheria, scarlet fever and tuberculosis, and the transference of the money now expended in this work to the proposed bureau. Dr. Howard's recommendation includes the following new activities in connection with the bureau:

Supervision of the health department of midwives, with the right to conduct examinations for licenses to practice in Baltimore, and the power to withdraw licenses for proved incompetence.

Establishment of an additional maternity clinic, under supervision of the supervisors of city charities or the health department, or both, to be equipped for prenatal instruction of mothers and for infant welfare work.

Expansion of the prenatal and maternity work of the stations supported by the Mothers' Relief.

The development of at least one additional day nursery for colored babies in connection with the proposed maternity station.

Establishment of a day nursery at the Broadway Recreation Pier during the summer for babies of mothers who work in canneries, especially, but not exclusively.

Expansion of the work of the pediatric clinics of the University and Maryland general dispensaries.

An increase of at least one third of the present number of nurses engaged in prenatal and infant welfare work, through either the health department or the Babies' Milk Fund Association of Baltimore.

Passage of an ordinance compelling physicians in attendance or the head of the family, or persons in charge of institutions, to notify the health department within twenty-four hours of onset of the occurrence of cholera infantum and summer complaint and symptoms of pneumonia in children of less than 5 years of age; also an ordinance giving the health department the right to investigate and supervise, when it is deemed necessary, the hygienic and nursing care, including the feeding, of such children.

Establishment as soon as possible of a health center in the northwestern section of the city.

Dr. Howard shows that of 11,364 deaths in Baltimore last year, 1,783, or 15.69 per cent., were in babies of less than 1 year of age. The total number of deaths of babies of less than 5 years old was 2,446, or 21.53 per cent. of the whole.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, AUGUST 10, 1918

THE INTERALLIED FOOD SITUATION

In a speech recently delivered by the United States food administrator, Mr. Herbert C. Hoover,[1] in London, he asserted essentially that the Allied food administrators are charged with the duty of managing the dietary supplies of 220,000,000 people in Europe and North America pitted against the Central Powers. This is something more than a problem of commerce and transportation or a test of modern agriculture; it is destined to be an enormous experiment in practical nutrition. It cannot fail to be of unusual interest to the medical profession to learn the broader aspects of the plans by which it is proposed to feed these vast numbers of human beings. Fortunately, as was recently pointed out in The Journal,[2] the Allied countries have entrusted the study of the food resources and food needs as well as the nutritional conditions in the respective nations to an interallied commission, so as to secure a physiologically reliable and sociologically acceptable outcome in correlated action by the highest authorities. In this way it is hoped to place the provisioning of the Allied countries on a sound scientific basis.

The establishment of the food requirements of man has been attended with much uncertainty and not a little debate. It is one thing to determine, even with admitted accuracy, what the minimal or sustenance diet of an individual may be, and quite another matter to decide where the optimal allowance lies. "Laugh and grow fat" may be a physiologic truth; but it gives little assistance to the dietitian who must provide for a large company of persons. Nor can the desire to attain a high degree of national vitality be satisfied by the mere calculation of calories. The modern well balanced regimen must provide not only for the exigencies of work and growth and the varying demands of age and sex, but also for the more subtle essentials that students of nutrition have only recently come to appreciate more fully.[3]

How have the interallied scientists met the situation as advisers to the nation? Such details as have been made public give an intimation of the best judgment of competent physiologists of recognized reputation. In the agreement reached as to the minimal food requirements of the average man, it was laid down[4] that "for a man weighing 70 kg., or 154 pounds, doing average work during eight hours a day, the food as purchased should have an energy value of 3,300 calories per day, but that a reduction of 10 per cent. could be supported for some time without injury to health." Bearing in mind that these figures are rated as minimal rather than optimal needs, and recognizing that the present period is one of enormously decreased food production and great loss of supplies, it must be admitted by every one who has followed recent studies on nutrition that the advised allowance is conservatively liberal. It will work no hardship on any one.

In view of the unlike views regarding the need of meat, a minimal ration of this food has not been adopted by the interallied conference. The recent voluntary reduction in meat consumption in the United States bears out the contention that the proteins of meat can be replaced by other proteins of animal origin, such as those contained in milk, cheese and eggs, as well as by proteins of vegetable origin. The conference even sanctioned the statement that no absolute physiologic need for meat exists. According to the published accounts it was considered desirable, however, to fix a minimal ration for fat at 75 gm.—about 2⅝ ounces per average man per day. This quota is to be made up from fats partly of vegetable origin and partly from animal sources. The commission expressed the opinion that if the amount of fat of vegetable origin was found to be insufficient it might be necessary to maintain a certain stock of animals to make good the deficit. Another item of physiologic import concerns the milling problem. It was advised that a uniform extraction of 85 per cent. should be adopted in all the Allied countries. This figure is slightly higher than the familiar extraction of patent flour in the United States, where it may apply only in case of scarcity.

These proposals are likely to win the approval of those most competent to determine the limits of physiologic safety in human nutrition; at least they have the stamp of a sane war time advice. With the added assurance of the food administrator that this nation is more than likely to be able to "deliver the goods" in the coming year, we may willingly and cheerfully continue our personal sacrifices in consumption, confident that we shall help to maintain the health, comfort and courage of the Allied nations by eating at the common table with them.

1. Reported in the public press dispatches of July 24, 1918.
2. Science and the Food Administration in War, editorial, The Journal A. M. A., Aug. 3, 1918, p. 378.
3. Newer Features of Adequate Dietaries, editorial, The Journal A. M. A., June 9, 1917, p. 1700; War Diet and Metabolism, Oct. 6, 1917, p. 1173; War Time Difficulties in Practical Dietetics, June 29, 1918, p. 2028.
4. The essential facts, reprinted from the British Medical Journal, are taken from Science, July 19, 1918, p. 60.

DISCOVERIES AND DISCOVERERS

In spite of the wonderful achievements of modern science, it seems impossible to get the public to think in scientific terms. This is doubtless due to a fundamental weakness in our educational system. The tendency still is to think in terms of the eighteenth century rather than of the twentieth. Many times THE JOURNAL has been chided, even by its friends, for failing to take seriously preposterous claims made for alleged discoveries in medicine by well-meaning but self-deluded enthusiasts or by shrewd and conscienceless charlatans. Far too often the attitude is that any alleged discovery in medicine, no matter how bizarre or how humanly improbable, should be taken up in all seriousness and subjected to the tests of modern laboratory methods. It was only a few years ago that a quack of unsavory antecedents brought forth an alleged cure for consumption—a disease that for years has been the subject of study by the best brains in the world—and a medical college spent thousands of dollars "investigating" the "cure," thereby giving it a standing that it would never have received otherwise and incidentally obtaining for the school an amount of publicity that may or may not have been desired. As THE JOURNAL said at the time, it would have been just as pertinent for a body of astronomers to determine by scientific methods whether or not the moon is really made of green cheese.

The point we would make is that the strides made by modern science have practically eliminated the possibility of men without training or special knowledge evolving any epoch-making discovery. In this connection an editorial in the *Scientific American* of recent date, dealing with the mechanical sciences rather than the medical, is well worth quoting in part. The editorial discussed the "Garabed" incident. "Garabed," as our readers know, was a name given to a device which one Garabed T. K. Giragossian claimed to have developed and which, so far as could be learned from the generalities in which Mr. Giragossian indulged, would take energy out of the cosmos and transfer it directly into mechanical motion. Mr. Giragossian would give no details regarding his "engine," but was so able to hypnotize Congress into a belief that he had something worth looking into that it passed a joint resolution calling for the appointment of five scientists to pass on the claims for Garabed. The investigation proved, as might have been expected, that the thing was unsound in principle and nonoperative as a device.

The methods by which Garabed was brought before the public savored strongly of those used by quacks in the medical world, the one difference being that Giragossian was apparently perfectly sincere and unequivocally honest. The point that we bring out, however, and which, as we have said before, was so well expressed by the *Scientific American*, is the utter futility of wasting the time of scientific men on alleged inventions or discoveries by men without training who substitute secrecy and glittering generalities for facts and accomplishments. Quoting the *Scientific American:*

> Scientific discovery, once an open field for all comers, is today becoming more and more a matter calling for the most intensive special qualifications. As the body of human knowledge broadens and deepens, it becomes increasingly difficult to make any material addition to it. Any one undertaking such a task must of necessity bring to it a long and careful training, acquired either in the refined atmosphere of the laboratory, or in the rougher school of close contact with the operation of apparatus constructed by those who have already qualified. In particular, he must possess a carefully developed power of making accurate observations and drawing correct conclusions. It is rather the habit to point to men like Edison and Maxim in refutation of these necessities; but they are not to be so refuted. These men are examples, raised to the *n*th power, of the great inventor who has qualified in the University of Hard Knocks and Long Experience.
>
> On these grounds, when a man comes before us in the self-assigned rôle of a great inventor, it is incumbent upon him to answer, not necessarily the bald question "Who are you?" but certainly the more searching one, "What are your qualifications to undertake this work?" Only by his answer can we decide whether he possesses a competence deserving of attention, or is but a dilettante playing with fire. Yet this obligation was one which Mr. Giragossian, far from meeting, did not even appear to comprehend. To every effort to ascertain his qualifications he replied in the same terms, that he was an honest man, and could prove it by letters from his technically nondescript collection of friends and sponsors. The very fact that more than personal integrity is necessary in a man who would unravel the secrets of the creation of energy appears to have escaped his comprehension.

The fundamentals thus stated apply with equal force to the sphere of medical discovery. At the time when medicine was pure empiricism it was not only possible but also probable that the medicinal value of certain products or combinations of products might be stumbled on by those untrained and unskilled. That time has passed. Today, while it is not impossible, it is so improbable that there is no justification in taking up the time of scientific men in investigating alleged discoveries by men who are utterly lacking in the fundamental qualifications needed for the study of the complex problems of human pathology.

TOBACCO SMOKE AND TUBERCULOSIS

However obvious the contention that statistics never lie may seem in critical analysis, there can be no question about the danger of error that all too frequently lies in the way in which such figures are interpreted. A recent statistical inquiry bearing on the health and habits of literally hundreds of thousands of young men and presumably applicable to an increasing number of young women has been published by authority of the Surgeon-General of the Army and is certain to be widely quoted when once its true import is appreciated. An expert of the War Department Tuberculosis Board has attempted to ascertain the effect of the inhalation of cigaret smoke

on the lungs, a question that has aroused more than one thoughtful person in view of the seemingly inordinate increase of smoking that has developed as the years go on. Major Webb[1] has found from observations on several thousand soldiers that comparatively few nonsmokers (only 27 per cent.) have ronchi or sibilant râles; most smokers, on the other hand, do exhibit these signs of chronic bronchial irritation, and cigaret smoke inhalers almost invariably show them. It is thus clear, to quote a reviewer[2] of this report, that individuals who are habitually subjecting their respiratory tract to the far from soothing influence of cigaret smoke would be more likely to exhibit its effects, that is, inflammation, than those whose gaseous intake is confined to the more or less undefiled atmospheric air of town and country. Indeed, this is what might have been anticipated.

Major Webb's report goes a step farther, however, It is recorded that of a comparatively large body of young men the proportion discharged from active army service because of active tuberculosis was no higher among those who show evidence of the production of ronchi than among the nonsmokers with quiet chests. Webb interprets the data as suggesting that the inhalation of the smoke of cigarets does not aid in the outbreak of pulmonary tuberculosis.

The finding that men with bronchi in a state of chronic inflammation do not develop tuberculosis in larger numbers than men with what might be called more normal bronchi will seem to many to be at variance with the older belief that inflammations of the respiratory tract predispose to the disease. Krause,[3] who has attempted a more critical discussion of the meaning of the army statistics, points out, however, that in the light of present-day studies of inflammation, this state of the tissues, if it does anything, probably plays a part in resisting bacterial invasion. To quote Krause, inflammation is the visible expression of an animal organism's capacity to react to irritation whether the latter is mechanical, chemical or thermal; whether it is set up by organized or unorganized material; by inert or living substances, by grains of sand or bacterial parasites. If this is true, Krause continues, we must give up our ideas that inflamed tissues are especially favorable soil for bacterial invasion. They are the very reverse; they are points of unusual resistance.

It does not follow, however, that if inflammation does not lay a tissue more open to infection, dormant tubercles are equally protected thereby. On the contrary, hyperemia and congestion may help to disintegrate the mass and thus to assist in metastasis. In other words, "inflammation can have two very different effects, depending on whether it is concerned with implantation of bacilli or an action on a focus already present." It will doubtless make some difference whether the inflammatory reaction is mild or severe, and whether or not there are dormant tubercles in the tissues involved. All of these varied factors, as well as the possible constitutional effects of tobacco as such, must be taken into consideration before final pronouncements are made on a subject of such serious moment to our American youth.

1. Webb, G. B.: The Effect of the Inhalation of Cigarette Smoke on the Lungs: A Clinical Study, Am. Rev. of Tuberc., 1918, **2**, 25. This paper has also been published in the Military Surgeon.
2. Krause, A. K.: Bull. Johns Hopkins Hosp., 1918, **29**, 106.
3. Krause, A. K.: Tobacco Smoke and Pulmonary Tuberculosis, Am. Rev. Tuberc., 1918, **2**, 99.

THE NUTRITION OF BACTERIA

There is an enlightening frankness in the presidential address of Professor Rettger[1] of Yale University, before the American Society of Bacteriologists, wherein it is stated that "we are as yet in the dark regarding the real food requirements of bacteria." The widespread preaching that these lowly organisms are the scavengers that utilize practically all sorts of organic matter as food gives little indication of the rapidly growing evidence of the specific peculiarities of bacterial nutrition—of the suggestion that "the problem of dietetics in bacteriology is as real as in animal physiology." Rettger reminds us once more that the processes involved in the pancreatic digestion of protein are in a large measure reproduced by the proteolytic enzymes of organisms of the *Bacillus subtilis* and *Proteus vulgaris* types, certainly by the organisms of putrefaction. A new interpretation may be brought to the well known fact that bacterial enzymes are able to bring about the rapid cleavage of true proteins with the production of essentially the same decomposition products as those that are formed in ordinary alimentary digestion, namely, proteoses, peptones and various amino-acids.

The contention that bacteria are unable to derive nourishment directly from native proteins has been referred to in THE JOURNAL[2] as a striking contribution of recent microbiologic studies. Rettger, to whom fundamental investigations in this field are attributable, does not hesitate now to assert that in a medium in which there is no source of nitrogen other than proteins, bacteria will thrive no better than in a chemically pure saline solution. Even proteoses and peptones "are like stone to the bacterial cell." A preliminary cleavage of the protein by a digestive process appears to be indispensable.

In this respect, therefore, the bacterial cell closely resembles the animal cell. The correct pabulum for each of them appears to be represented by disintegration products of a simple type—amino-acids, for example, in the case of proteins—derived from available foods. Furthermore, according to indications that

1. Rettger, L. F.: The Science of Bacteriology and Its Relation to Other Sciences, Jour. Bacteriol., 1918, **3**, 103.
2. The Resistance of Pure Proteins to Bacterial Decomposition, editorial, THE JOURNAL A. M. A., July 17, 1915, p. 257; Newer Aspects of Bacterial Metabolism, Nov. 11, 1916, p. 1448.

have recently been reviewed in THE JOURNAL,[3] it is not unlikely that bacteria require "promoters" of growth comparable with the vitamins that are now believed to play an important rôle in the nutrition of the higher animals. At any rate, the extracts of animal organs, as well as those of certain plant tissues, exhibit valuable nutrient potencies for bacteria which it is as yet impossible to supply in any synthetic medium of known composition. When these diverse nutritive factors of bacterial life and growth are better understood, the current systems of medium making and culture study, admittedly still crude in their general plan, will doubtless be the subject of profound and intelligent revision. Already the problem of the reaction of the medium in which bacteria grow, as expressed in its hydrogen ion concentration, is being considered from new angles which refined methods of measurement alone have made possible.

THE DIGESTIBILITY OF NUT OILS

In the food restrictions that have inevitably arisen among the fighting nations of Europe, the decrease in the amount of fat available for dietary purposes was early felt as a real hardship. This seems to have been particularly true in Germany, where the daily allowance of fat has at times undoubtedly fallen to surprisingly low figures. Kellogg and Taylor,[4] who have made an illuminating study of the food problem in relation to this country and to the war, have thus presented the possible reasons for the almost universal desire for fat: A diet low in fat does not lend itself to our normal types of cooking. Foods prepared without fat are not naturally cooked and do not suit the taste. A diet low in fat is rapidly digested, and as the sense of satiation in alimentation is in part connected with the duration of the process of digestion, fat-free foods do not give the normal satisfaction. Those two factors, the use of fat in cooked food and the acceleration of the process of digestion in the absence of fat, account for the dissatisfaction felt in Germany at present with the low fat intake. This is in part a matter of habit; the low fat intake in Germany today is as high as the normal fat intake, weight for weight, in Japan. Indigestion may ensue in any person who continuously follows a diet that does not give digestive and physiologic satisfaction.

In view of these circumstances, it was quite natural that when the need arose of saving fats, which are used not only as food, but also as lubricants and as sources of soaps and of the important glycerin entering into certain indispensable war explosives, there was an active search for every available source. At one time it seemed as if the supply of milk fat and of butter might be seriously impaired in this country as it was abroad. Fortunately, there is now less occasion for anxiety on this point, since the intactness of our dairy herds has been satisfactorily maintained, so that milk products are comparatively abundant. Meanwhile, many little valued or unknown fats have come into more or less prominence. Thus one hears of oil of theobroma (cacao butter) and the oils of the peanut, coconut, sesame and cottonseed, as well as the more familiar olive. Furthermore, there are the various mixtures of fats, some of them oils rendered harder by hydrogenation, which make up the oleo and nut margarins of commerce.

"In the days of the ancient Romans," says Mrs. Rose in a readable essay on everyday foods in war time, "vegetable oils were prized for food, and butter was used for cosmetics. In America today we are asking what is to become of us if we cannot have butter to eat! Such are the fashions in food." Wartime necessities frequently bid us to disregard gastronomic tradition and to content ourselves with the "next best" in matters of food. The recent study of vitamins has shown that certain fats, notably those of milk, eggs, liver and other animal tissues, are the carriers of growth-promoting properties which must not be overlooked. Prudence tells us, therefore, to include some of the fat-soluble vitamin in the diet, particularly in the case of growing children. Necessity may make us go a step farther and add other fats to the dietary. Before any innovation is attempted, it ought to be definitely ascertained, so far as this is possible, whether there is any danger connected with the proposed practice.

A series of studies at the United States Department of Agriculture[5] has indicated that lard, beef fat, mutton fat (kidney fats), butter, cream, chicken, goose, fish and egg-yolk fats, oil of theobroma, and olive, cottonseed, peanut, coconut and sesame oils are well utilized by the human body and may be used in amounts exceeding those of the ordinary diet, without causing any laxative effects. In the experiments, all of the fats were separated from the materials in which they naturally occur. Most of them are thus used in the ordinary diet, though with a few (egg fat and fish fat, for example) this is not the case. A more recent investigation by Holmes in the Office of Home Economics at Washington brings comparable data regarding a further group of fats obtained from some of the common nuts. These oils cannot be purchased in any considerable quantities and are little used in this country as such. Nevertheless, considerable quantities are consumed annually as a constituent of the nuts in which they occur. From 43 to 100 or more grams (1½ to 3⅓ ounces) of the oils were supplied by the diets tested. The oils were found to be well digested, the coefficients of digestibility being

3. Bacteria and Vitamins, Current Comment, THE JOURNAL A. M. A., Nov. 3, 1917, p. 1531; April 20, 1918, p. 1164.

4. Kellogg, V. L., and Taylor, A. E.: The Food Problem, New York, 1917, p. 118.

5. Langworthy, C. F., and Holmes, A. D.: Digestibility of Some Animal Fats, Bull. 310, U. S. Dept. Agric.; Digestibility of Some Vegetable Fats, Bull. 505; Studies on the Digestibility of Some Animal Fats, Bull. 507.

97.1 per cent. for almond oil, 97.5 for black walnut oil, 96.3 for English walnut oil, 99.3 for hickorynut oil, and 96.8 for pecan oil. The nut oils, which are liquid at ordinary temperatures, have practically the same digestibility as the common vegetable oils (cottonseed, peanut, olive, sesame and coconut oils), which are also liquid at ordinary temperatures. When it is further borne in mind that the nut oils did not exert any unusual influence on the digestibility of the foods eaten with them, we may admit the contention of the government expert that these fat products may be used freely for food purposes whenever they are available. And "fat is fuel for fighters."

Current Comment

THE MEDICAL PROFESSION AND THE WAR

More than 25,000 physicians have accepted commissions in the Medical Department of the Army, and at least 2,000 more are in process of being commissioned. Adding to this number those in the Navy, we can estimate that over 29,000 physicians have volunteered and are now either in active service or subject to immediate orders. The 5,000 asked for last May have been supplied; another 5,000 will be called for immediately, and probably still another 5,000 later on. It is now generally believed that the present plan is to raise an army of 5,000,000 men as soon as possible. This means at least 35,000, if not 40,000 medical officers. The way in which our profession has already responded to the call of the Surgeon-General demonstrates both the patriotism and the proverbial unselfishness of the average medical man. No doubt the same spirit would supply the 40,000. But this voluntary method of furnishing the Army with medical officers is as unfair and as unsatisfactory as would be the same method of supplying the necessary personnel for the fighting force.

* * *

The physician who is prompted by a purely altruistic spirit, the one who is always willing to make sacrifices for his country, the one who is willing to give up a position attained through years of endeavor for the good of the common cause—these are the men who have been coming forward from the first, and who will continue to come forward. The man who wants to utilize the opportunity to make money, the man who would capitalize the sacrifices of a confrère, the indolent—these find it possible to explain—to themselves—why they do not volunteer. There are, of course, those whom the Surgeon-General's Office will not commission because it knows of justifiable exempting circumstances. There are those whose entrance into the service would be a distinct loss to their communities and, in the final analysis, to the government.

* * *

The democratic method—the correct method—to raise an army is compulsory selective service. THE JOURNAL, however, has always opposed—and would continue to oppose—a compulsory draft of physicians alone. Such a procedure would be against the spirit of the Constitution of the United States: it has been, is, and would be in the future, uncalled for and an insult to the profession. But a compulsory selective service of all men, which would include physicians, is ideal. It is for this reason that THE JOURNAL rejoices in the fact that Congress is finally seriously considering raising the draft age to 45 years. There will be opposition, of course, and it is possible that the maximum age will be reduced below 45. It is to be hoped not.

* * *

If the new draft bill becomes a law, it will help to solve the problems that now face those who are interested in the health conditions of the country. There never has been any doubt that the number of physicians necessary for the Army would be forthcoming. There is the other side, however, and that is that the voluntary system is likely to deplete certain communities. It has already seriously affected certain hospitals and medical colleges. Sanitarians, health officers and other officials who were doing important work in civilian life have entered military service, thus leaving vacant very important public health positions. The Provost Marshal-General's Office is bewailing the fact that a large number of medical men connected with the local, district and advisory boards are giving up this work to enter military service. With the compulsory selective service age increased to 45, there remains only the question of devising methods of procedure to utilize the medical man power thus made available to the best interests of the military forces and of the civilian population. Because of this, THE JOURNAL welcomes the conscription of the active man power of the entire nation, a method which is not only democratic, but has proved itself eminently fair and equitable to all concerned.

THE SUGAR RATION

For the first time our population is confronted by the prospect of a definite sugar ration. While it is true that there is no general compulsory mechanism outside of a certain amount of control through the trade, and the fact that our citizens are to be put on their honor by the Food Administration, to all intents and purposes a definite ration has been established. Two pounds per person per month is certainly an ample supply from a physiologic standpoint. It will be interesting to observe whether there are any effects on the American people from the decreased sugar consumption. There is no doubt that we have long been using sugar in a luxurious way, and that there are many persons who have a sugar habit that approximates in its craving the alcohol and tobacco habits. It has been said that excessive sugar consumption by individuals is an evidence of low moral resistance. The most pressing problem in connection with sugar before the Food Administration today is to see that there is a sufficient amount of it for the preservation of our fruits. This can be done only by decreased home use and by reduction in the manufacture of soft drinks

and candy. The excessive amount of sweets used by our population, particularly during the summer season, has certainly not been advantageous to the general public health. Children in particular will profit by this sugar shortage. With the approaching harvest, which promises to relieve the existing shortages in various forms of food that have given us and our allies so much concern during the past year, there will be a tendency toward relaxation in food conservation. This would be most unfortunate at the present time, when it is vital to build up large reserve stocks of food against future poor harvests and in order to get the opportunity to put through the great offensive with which the war must be won. The constant reminder that the sugar supply is short will be evidenced by the rationing and the absence of the open sugar bowl from the table. This will be of value in calling our attention to the continued need of service and sacrifice in regard to food. The imagination of the American people has been caught by the fact that their individual savings gathered together and shipped across to the Allies have played a decisive part in the war in the last few months. Most of these savings were made in the presence of a surplus of food. It will be interesting to notice the reaction of our people in the case of sugar, in which the supply of America is to be decidedly short during the next few months. Judging from the past, they will welcome the opportunity to do their part to see that there is an equitable distribution of the essential foods between ourselves and our allies.

MEDICAL MOBILIZATION IN THIS COUNTRY AND IN GREAT BRITAIN

The procedure adopted by Great Britain, outlined under Medical Mobilization and the War in this issue,[1] reflects honor on the medical profession since it leaves the profession to work out its problems entirely alone. This is an honor which is undoubtedly merited because of the patriotism and the unselfishness which have always actuated the large majority of physicians. It is an honor which we are sure subsequent events will show to have been justified. Just how the medical profession of the United States will be affected by the proposed legislation for raising the selective service age is not yet known. The bills as introduced into Congress do not make any specific provisions that would cover the medical profession. There is no method under our present selective service law by which physicians are specifically recognized in any way. Obviously the fact that the new draft law takes in the manhood of the country up to 45 years of age means that either the law or the regulations will provide for the classification of industries, occupations and professions so that the man power of the country can be utilized to the best advantage for the winning of the war. The methods of utilizing the medical profession by our British allies takes care of the needs of the civilian as well as of the military population. Our own selective service law permits the inducting of a physician into the Army on the same basis as any other man. He is drafted not as a physician but as a civilian, and enters the Army as a private soldier in the ranks. Later he may be assigned to the Medical Department and, if qualified in every way, may finally obtain a commission in the Medical Department. Certainly in the future some method should be adopted by which this roundabout way can be avoided. In Great Britain the problem is worked out by the medical profession itself. There is no method under our present selective service by which this can be done, and we have no body similar to the Central Medical Committee and the Local Medical War Committees of Great Britain. These were created by the profession itself, with the cooperation of the British Medical Association, the Royal Colleges of England, etc., the insurance panels and the Medical Department of the Army being represented. As we have stated elsewhere, however, the details of the procedure will depend largely on the text of the law, and presumably will be worked out by the Offices of the Surgeon-General and Provost Marshal-General, through regulations.

1. Page 471.

SCIENCE AND HUMAN VIVISECTION

In Boston there is published an antivivisection journal by the freak name of *Living Tissue*. In its July number we find an editorial on the louse and trench fever. Referring to the experiments on human beings, the editor says: "This unanimity of survival [of the men experimented on] does not diminish the heroism with which they faced the doctors' syringes and unknown horrors. . . . There can be no disposition anywhere to detract from the heroism and sacrifice of these young men." Not a word of reprobation of human vivisection, either of the experiments on them or on those earlier heroes who were the means of discovering the relation of the mosquito to yellow fever. "Silence gives consent." But the editor, being a lawyer, knows all about yellow fever. He says, "It is entirely probable and reasonable that yellow fever would have been eradicated by sanitation in the Panama Canal Zone *without the elimination of the mosquito.*" And this is the stuff with which he feeds his readers.

POLLEN AND HAY-FEVER

Ever since "hay-fever" began to be regarded as a manifestation of an anaphylaxis-like hypersusceptibility of certain persons to the pollen of some plants, it has become important to recognize the specific product responsible for the attack that the sensitive subjects experience. Indeed, in all present-day consideration of the clinical significance of anaphylaxis, it is essential to detect the source of the allergic substance so that it can be removed, avoided or perhaps combated by a suitable immunization procedure. It is asserted that the hay-fever prevalent in Europe is dependent chiefly on a protein substance found in the pollen of most grasses, while that of America, which occurs chiefly in the autumn, is caused by the proteins of the pollen cells of the *Ambrosiaceae* and *Solidaginae* — plants that are generally distributed on the North American continent and bloom in August and Sep-

tember. The disease occurring in China is caused by another plant, the *Ligustrum vulgare*.[1] Attention has been called by a California botanist[2] to the observation that in the region of the United States west of the Rocky Mountains hay-fever may be produced by an almost entirely different flora from that which causes it in the Eastern States and in Europe, and that the exact species involved must be determined in each case before treatment for immunity is undertaken. This statement is the outcome of the discovery, among other features, that the spring type of hay-fever, which is very troublesome in the Sacramento Valley, is attributable to a walnut tree pollen. In the city of Colusa it was noted that the native California black walnut (*Juglans californica* var. *Hindsii* Jepson) was much used as a street tree, that the abundant pollen sifted down over the city just at the time when the disease was most prevalent, and that the disease disappeared soon after the close of the flowering period. It was also learned that when patients left the region temporarily to escape the disease they were free from the symptoms, except when passing through towns where the black walnut grew. Finally, the botanical characters of the pollen were exactly those which one would expect in a hay-fever plant. Since this evidence all pointed to the walnut as probably the chief offender, samples of the pollen were gathered and biologic tests were made with positive results. Similar observations were made elsewhere in the same region. Hall states that the treatment of numerous hay-fever subjects in the Sacramento and neighboring valleys to render them immune to hay-fever is now under way, and that the serums prepared from the black walnut pollen are the ones most used. It is expected that by this means the spring type of the malady can be largely eliminated in those districts. A more direct method would be to remove the trees, or, better yet, to graft the tops over to English walnut, which rarely, if ever, causes hay-fever. The assumption that tree pollens play only a minor rôle, if any, as causative factors in hay-fever must now, if we follow Hall, be abandoned. Perhaps more attention should be directed promptly to some of the Eastern forms.

1. Zinsser, Hans: Infection and Resistance, New York, 1914, p. 434.
2. Hall, H. M.: Walnut Pollen as a Cause of Hay-Fever, Science, 1918, **47**, 516.

THE DESIRABILITY OF MAKING PNEUMONIA A NOTIFIABLE DISEASE

It is today more clearly recognized than ever before that there is an advantage in having all serious communicable diseases reported to the health authorities. For some time past, pneumonia has constituted one of the few exceptions to the general practice. In spite of the obvious difficulties in the way of requiring the early reporting of this disease, the effort would seem worth making, at any rate in all favorably situated communities. Owing to the interest in pneumonia in connection with its occurrence in the army camps, the present would appear an especially propitious time for putting pneumonia on the list with the other reportable diseases. Several sound arguments may be advanced in support of this proposal. The occasional occurrence of epidemics of pneumonia as sharply delineated as outbreaks of diphtheria or typhoid has long been known, but in recent years the nature of such epidemics has not often been subjected to investigation by modern methods. If all pneumonia cases were notifiable, material for epidemiologic study would become available and might reveal important relations. Again, observations by Stillman[1] and others have shown that pneumonia contacts are likely to harbor the same pneumococcus type as that found in the patient: if the case is due to Type I infection, the Type I and not Type II is likely to be found in the contacts. The bearing of this fact both on the mode of treatment and on the prevention of spread is obviously important. In instances in which pneumococcus typing is carried out, the occurrence of additional cases in the patient's environment may possess great epidemiologic significance. The experiences of last winter and spring in the army camps emphasize the desirability of keeping cases of pneumonia under surveillance. Apart from the evident necessity for distinguishing between various types of infection and modes of communication, there is the question of the wisdom of instituting at least a moderate system of isolation of pneumonia patients. Cole and MacCallum,[2] after studying pneumonia at the base hospital at San Antonio, Texas, concluded that a very large number of patients suffering from acute lobar pneumonia have hemolytic streptococci in their throats, and that "when infection is once started in a ward in which the patients are closely associated, the streptococci become widely distributed; they probably gain in virulence with repeated transfer through the human subject, and serious and widespread infection results." It cannot be said that a disease so widespread and so much influenced by predisposing factors as pneumonia is easy to control from the public health standpoint, and doubtless too much should not be expected from the notification of cases. At the same time, knowledge of the localization of previous cases, of their connection with other diseases, and of their relation to season, age, sex and industrial employment may afford some clue to methods for preventing the spread of the infection. Only experience can show whether isolation of patients, the use of face masks by attendants, more general hospitalization, and other possible protective measures will really prove efficacious in reducing the prevalence of pneumonia in civilian communities. In what way can information be obtained other than by putting promptly on record where and when cases of pneumonia develop?

1. Stillman: Jour. Exper. Med., 1917, **26**, 513.
2. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, The Journal A. M. A., April 20, 1918, p. 1146.

Meat and Habit.—The flavor of meat is such that it lends itself to the easy preparation of a palatable meal, but this flavor could undoubtedly be as well obtained if the present consumption of meat were cut in two. It is a question of habit; but with the present reduced supply of meat one must adopt new habits. It would be highly desirable if the grain now fed to fatten beef were given to maintain herds of milch cows.—Lusk, Food in War Time.

Medical Mobilization and the War

Number of Physicians Under 45 Years of Age

The records in our Biographical Department show that there are 75,498 physicians under 45 years of age licensed to practice medicine in the United States.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES FOR THE WEEK ENDED JULY 26, 1918

Compiled from Weekly Telegraphic Reports Received in the Office of the Surgeon-General

	This Week	Last Week
1. ANNUAL ADMISSION RATE PER 1,000 (disease only):		
All Troops	993.8	1,084.5
Divisional Camps	948.8	1,044.9
Cantonments	1,006.4	1,264.9
Departmental and Other Troops	889.5	913.6
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:		
All Troops	37.45	39.6
Divisional Camps	36.27	41.49
Cantonments	41.68	43.33
Departmental and Other Troops	33.27	34.7
3. ANNUAL DEATH RATE PER 1,000 (disease only):		
All Troops	2.12	2.9
Divisional Camps	1.25	2.33
Cantonments	2.90	3.61
Departmental and Other Troops	1.68	2.47

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending July 26, 1918	Departmental and Other Troops, Week Ending July 26, 1918	Divisional Camps, Week Ending July 26, 1918	Cantonments, Week Ending July 26, 1918	Expeditionary Forces, Week Ending July 18, 1918
Pneumonia	9.29	5.23	8.8	12.12	9.28
Dysentery	0.95	1.40	1.07	0.5	0.61
Malaria	5.69	2.33	9.7	6.81	0.66
Venereal	182.1	148.0	114.7	243.5	27.2
Paratyphoid	0.03	0.0	0.0	0.08	0.0
Typhoid	0.70	0.37	0.71	1.0	0.15
Measles	26.4	10.3	23.1	42.3	2.08
Meningitis	0.45	0.46	0.36	0.5	0.86
Scarlet fever	0.45	0.84	0.0	0.3	0.86

BRITISH DELEGATES TO ANNUAL SESSION PUBLISH REPORT

The London *Times* for July 15 contains the following letter from the official delegates of Great Britain to the annual session of the American Medical Association:

Sir:—Some months ago the American Medical Association forwarded to the British government a request that it should send representatives to attend their annual Medical Congress at Chicago. In response to this invitation, a mission was dispatched by the Ministry of Information. The mission has just returned to England.

The members gave addresses at all the principal meetings, and took an active part in the discussions. They also spoke at large public gatherings at twelve other towns in America and one in Canada, to audiences varying from 500 to 5,000, comprising members of the medical profession and important business and professional men.

The American recruiting authorities availed themselves of the opportunity to send representatives, who accompanied the mission, and appealed to the members of the medical profession to join the army. There were then 22,000 medical officers in the American Army, and during our visit 5,000 other medical volunteers came forward, until by June 22 the lists closed completely filled.

The mission visited the chief manufacturing establishments, which are devoting all their energy to the construction of ships of war of all sorts, merchant ships, aeroplanes and munitions. They also saw huge plants which had grown into splendid efficiency since the entrance of America into the war.

From these wide and varied sources the mission gathered the conviction that the American people have been thoroughly aroused, and are in entire agreement with Great Britain and her Allies. The business community have formed a clear conception of the magnitude of the task before them, and they are employing their unlimited resources of men and material to prepare for the coming ordeal.

At each public meeting the mission was asked to convey a message from the people of America to the people of Great Britain and her Allies to the effect that they are to be of good cheer; that America is with them whole-heartedly, and that she has thrown hereself into the conflict with all her strength, with the firm determination to fight till victory is complete.

From the extreme cordiality of their reception by all classes of the community the commission feel justified in believing that bonds of sympathy between the nations have been materially strengthened by their visit.

JAMES MACKENZIE,
W. ARBUTHNOT LANE,
HERBERT A. BRUCE.

MILITARY MEDICAL CONSCRIPTION IN GREAT BRITAIN

Now that we are about to make practically the entire active man power of the United States subject to the order of the government it is of especial interest to note how Great Britain, following the passage of its most recent military service act, has dealt with the medical profession. That service act makes every man born in Great Britain who was not more than 51 years of age on April 18, 1918, liable to military service, but it extends the liability for physicians to 56 years of age, in both cases subject to physical fitness on medical examination. The Ministry of National Service, similar in organization to our selective service boards, may intimate to any man that he may be more usefully employed for the good of the nation in carrying on his occupation in a civilian capacity. It has, however, the power to tell him where he can most usefully carry on his occupation, and if he refuses without good cause, he may be inducted into the ranks of the army to serve in any capacity which the government thinks fit. In order to arrive at a just decision the person called up may apply to the board for a certificate of exemption based on either personal grounds: that he would suffer serious domestic or financial hardship, that he is ill or infirm, or that he has a conscientious objection to combatant service, or on the general grounds that it is inexpedient to the national interest that he should be taken from the work which he is doing. It is, of course, conceivable that a man might apply for exemption under both clauses. In the cases of medical men who apply for exemption the appeals would be heard before the tribunals constituted by the Central War Committee and the Scottish Medical Service Emergency Committee, or before the Committee of Reference. These tribunals may grant absolute, conditional or temporary exemption on the grounds of personal hardship, ill health or conscientious objection, but in the case of physicians, when the ground of exemption is occupation, only conditional exemption will be granted, the condition being that the physician, if not required for military service, shall give his services to the civilian community in such manner as the Ministry of National Service deems best.

A circular[1] sent out by the Central Medical War Committee to local medical war committees gives the actual procedure which will be carried out. This committee first ascertains the areas from which doctors should be spared. A notification will then be sent to medical men in the areas selected who will previously have been examined medically by special National Service medical boards. This notification will be accompanied by an intimation that they may exercise their right to apply for exemption. The physicians will also receive a "certificate of protection" which will render its possessor not liable to the attentions of the recruiting officer. The "certificate of protection" will entitle the physician to exemption until offered a commission, but in the meantime places him subject to the condition that he will undertake such professional work as may be offered to him. In other words, he is liable for any civilian professional work, but not liable until further hearing for military work. Thus acting on information supplied by the local committee, the central committee will secure the names of all medical men in any given district who are available for medical work either in the commissioned personnel of the Army or in a civilian capacity. From this list the local committee will select those who they think can be most easily spared. Those so selected, if not satisfied, may have a hearing before the central pro-

1. Medical Practitioners under the Military Service Act, Editorial, British Medical Journal, June 22, 1918, p. 701.

fessional committee acting as an advisory body to the Ministry of National Service, but not as a statutory tribunal. A statutory hearing can be held only in case a practitioner refuses the "certificate of protection" and makes formal application to the tribunal for exemption within fourteen days after receiving notice from the ministry. The British Medical Journal Comments:

> "It is hoped that the method of procedure worked out by the Central Medical War Committee, in consultation with the medical department of the Ministry of National Service, will result in providing, with the least amount of inconvenience to the profession, a reserve of doctors known to be available either for military or civilian work; this reserve will be drawn upon if and when required. But the Ministry of National Service has stated that the probability is that most of the practitioners made liable under the new Military Service Act will in fact never be required to do anything but their own professional work in their own locality, and that where substitution is necessary the arrangements would in the majority of cases be local only, and would not entail the removal of the substitute from his own practice."

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, July 13, 20 and 27, and August 3.

ALABAMA

Mobile—Cowles, T. D.
Talladega—Thornton, W. L.

ARIZONA

Nogales—Smelker, V. A.

ARKANSAS

Batesville—Johnston, O. J. T.
Little Rock—Gray, W. K.

CALIFORNIA

Corona—Root, R. R.
Los Angeles—Collins, F. K.
Hanford, F. W.
Lacey J. M.
Mendocino—Peirsol, F. C.
Oakland—McCleave, T. C.
Pomona—Edgerton, H. W.
San Francisco—Wolff, M. B.
San Jose—Hall, J. U.
Venice—Palmer, B.
Watsonville—Watters, H. G.

COLORADO

Fort Collins—Kickland, W. A.
Julesburg—Dutton, F. G.
Plateau City—Watson, W. V.

CONNECTICUT

Bristol—Donohue, B. F.

DISTRICT OF COLUMBIA

Washington—Leech, F.

FLORIDA

Chattahooche—Spiers, W. H.
Green Cave Springs — Scruggs, S. A.
St. Petersburg—Wood, A. J.

GEORGIA

Cordele—McKenzie, O. G.
Lanox—Williford, G. G.
Martin—Crawford, J. H.
Monroe—Swann, W. K.
Moultrie—Brannen, C. C.
Zebulon—Hartley, J. M.

IDAHO

Kamiah—Bryan, C. H.

ILLINOIS

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Broadview—Coffman, S. W.
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Frisque, L. L.
Gran, A. G.
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Jefferson, F. A.
Kahlke, C. E.
Kupke, E. H.
Phillips, D. C.
Rest, O. W.
Roach, R. A.
Stanton, J. E.
Williams, T. J.
De Kalb—Wright, H. G.
Findlay—Johnson, R. W.
Genoa—Ovitz, J. W.
Grayslake—Palmer, J. M.
Highland—Meloy, E. S.
Illiopolis—Dugan, R. Y.
La Grange—Danielson, W. A.
Minonk—Millard, H. A.
Peoria—Ives, L. C.
Springfield—Compton, C. W.
Lockie, G. D.
Mautz, G. J.
Taylor, P. L.
Van Wormer, W. W.
Zaphyriades, S. D.
Warsaw—Loomis, DeW.

INDIANA

Attica—Kerr, A. R.
Berne—Hoffmann, S. P.
Boonville—Robinson, W. P.
Cicero—King, B. A.
Fairmont—Seale, J. P.
Fort Wayne—Rosenthal, M. I.
Ingleside—Wright, E. L.
Jamestown—Bennett, E. M.
Lafayette—Pyke, F. L.
Madison—Davis, R. E.
Plainfield—Stafford, J. C.
Portland—Moran, M. A.
Riley—Dupuy, C. M.
Sheridan—Johnson, P. S.
South Bend—Clark, S. A.
Terre Haute—Fink, O. E.
Union City—Ruby, F. McK.
Veedersburg—Small, G. W.
Zanesville—Murray, R. V.

IOWA

Des Moines—Dilley, H. H.
McKinley, A. D.
Dubuque—Gratiot, H. B.
Keogh, J. V.
Eldora—King, D. O.
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Gravity—Reed, L. T.
Keswick—Harlan, C. D.
Shenandoah—Barnes, B. S.
Webster City—Galloway, M. B.
Woodward—Darche, A. L.

KANSAS

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Topeka—Billings, A. E.
Wellington—Coplan, L. S.
Wichita—Slayton, F. H.

KENTUCKY

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Covington—Nestley, E. J., Jr.

LOUISIANA

Bunkie—Martinez, R. D.
Lafayette—Trahan, A. D.
Marksville—Mayer, G. A.
Rayne—Webb, R. C.

MAINE

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Elwood—Shewalter, G. M.
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MASSACHUSETTS

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Lynn—Frases, W. L.
Somerville—Ruston, W. D.
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Waltham—Hinchy, R.
Winchester—Dennett, D. C.
Worcester—Paglia, J. J.

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Pulford, L. S., Jr.
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Manistee—Lewis, L. A.
Polo—Gaus, C. B.

MINNESOTA

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Brainerd—Swanson, E. O.
Minneapolis—MacDonald, D. A.
Nopeming—Conroy, J. M.
Sauk Centre—Moynihan, A. F.
Spring Grove—Helland, G. M.
St. Paul—McIntosh, H. C.

MISSISSIPPI

Cruger—Chester, A. D.
Kosciusko—Browne, H. Z.

MISSOURI

Clarkesville—Bartlett, E. M.
Independence—Pierce, L. J.
Kansas City—Knox, A. C.
Koogler, J. F.
Marceline—Cater, R. M.
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Sedalia—Morley, F. R.
Smithville—Calvert, H. A.
Springfield—Knabb, A. D.
St. Joseph—Underwood, M. L.
St. Louis—Abrams, S. F.
Clemens, J. R.
Diekes, G. J.
Hyndman, C. E.
Sage, E. S.
Short, U. S.
Swarts, J. L.
Wiener, M.
Utica—Carpenter, G. W.

MONTANA

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Livingston—Stuart, J. E.
Nashua—Currie, A. N.
Roundup—Baird, J. E. D.

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Hastings—Boren, A. J.
Fremont—VanMeter, R. T.
Lincoln—Hompes, J. J.
Smith, R. L.
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Seward—Ragan, S. E.
York—Plumb, J. N.

NEW HAMPSHIRE

Littleton—Page, J. M.
Portsmouth—Towle, F. S.
Wolfboro—Clow, F. E.

NEW JERSEY

Jersey City—Campana, F. A.
Maxson, C. B.
Trenton—Mras, J. M.

NEW MEXICO

Carrizozo—Johnson, F. H.

NEW YORK

Brooklyn—Cosgrove, J. E.
Ketterle, J.
Matusoff, I.
Straub, G. C.
Tanner, E. K.
East Durham—Persons, R. E.
Evans Mills—Jones, E. W.
Flushing—Towbin, A.
Goshen—Hamilton, B. C.
Governors Island—Purdy, C. H.
Hamilton—Willcox, G. W.
New York—Barringer, T. B., Jr.
Brancato, F.
Higgins, E. T.
Hyman, S. M.
Keyes, S. J.
Milici, A.
Silkworth, W. D.
Walsh, J. J. S.
Rochester—Jackson, E. W.
Steinhauser, C. G.
Syracuse—Wetherell, F. S.
Theills—Little, C. S.
Three Mile Bay—Maloney, W. N.

NORTH DAKOTA

Underwood—Tyrrell, J. B.
Warwick—Carter, J. A.

OHIO

Akron—Dixon, C. A.
Alfred—Caldwell, S. C.
Ashland—Crawford, R. B.
Bradford—Warvel, J. H.
Cincinnati—Ayres, W. M.
Cleveland—Tarr, H. M.
Orville—Irvin, G. H.
Springfield—Rinehart, J. H.
Rodebaugh, G. C.

OKLAHOMA

Bennington—Gentry, I. L.
Durham—Payne, J. B.
Dustin—Parker, C. E.
Edmond—Flesher, T. H.
Haskell—Shackelford, T. T.
Kiel—Cavett, E. R.
Miami—James, E. D.
Oklahoma City—Davis, S. C.
Korcho—Brown, H. C.
Tulsa—Wright, W. E.
Vian—Sandlin, J. T.

OREGON

Portland—Marson, R. C.
Watkins, R. E.

PENNSYLVANIA

Bellefonte—Reed, M. W.
Braddock—Morrow, F. L.
Carrick—Thomas, C. M.
Crafton—Morgan, J. S.
Easton—Cope, W. F.
Lewisburg—Thornton, H. R.
Meadville—Winslow, H. C.
Meyersdale—Lichty, B.
Monessen—Herron, T. B.
New Castle—Campbell, W. L.
Northumberland—Rise, C. W.
Philadelphia—Denney, G. H.
Ramsey, W. G.
Pittsburgh—Donaldson, J. O.
Hughes, W. P.
Smith, H. P.
Updegraff, H. C.
Quakertown—Weirback, J. A.
Reamstown—Russell, E. D.
Sunbury—Shoffstall, J. W.
West Alexander—Timmons, J. M.
Wilkes-Barre—Bell, W. S.

SOUTH CAROLINA

Batesburg—Gibson, W. T.
Charlestown—Mitchell, J. C.
Columbia—Riser, L. A.
Greenville—Langley, C. C.
Pendleton—Day, R. B.
Lawrence, J. H.

SOUTH DAKOTA

Garretson—Reagan, R.
Huron—Sprague, B. H.
Lead—Crane, H. L.
Sioux Falls—Craig, D. W.

TENNESSEE

Dreaden—Mayo, B. S.
Chattanooga—Stem, L. T.
Martin—Stewart, J. M.
Memphis—Colliers, C.
Davensport, R. R.
Meeker, S.
Nashville—Glasgow, S. M.
Rockwood—Nelson, J. E.
Sparta—Johnson, W. M. H.

TEXAS

Beeville—Turner, A. J.
Dallas—Newsom, H. G.
Denison—Freels, A. M.
El Paso—Hardy, J. A.
Fort Davis—Harris, J. M.
Fort Worth—Withers, I. A.
Houston—Robbins, F. L.
McGregor—Connally, W. P.
Port Arthur—Swearington, M.
Sabinal—Hudson, S. B.
Tyler—Rice, E. D.

UTAH

Salt Lake City—Jorgenson, H. C.
Murphy, A. J.

VERMONT

Brattleboro—White, B. E.
Craftsbury—Bibby, E. N.
Northfield—Hurley, W. H.

VIRGINIA

Covington—Hankins, J. L.
Harrisonburg—Harris, L. N.

WEST VIRGINIA

Bluefield—Hare, O. S.
Newbury—McGuffie, C. R.
Parkersburg—Deem, H. N.
Philippi—Williams, C. B.

WISCONSIN

Janesville—Pember, A. H.
Madison—Eyster, J. A. E.
Smith, K. W.
Mauston—Starnes, B.
Milwaukee—Ackerman, W. B.
Gray, A. W.
Nugent, A. C.
Sykes, L. G.
Sheboygan—Gunther, O. T.

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

Previous lists published in THE JOURNAL, June 29, July 13, 20 and 27, and August 3.

ARKANSAS
Little Rock—Jones, H. F. H.

CALIFORNIA
Santa Rosa—Herrick, A. B.

CONNECTICUT
South Manchester—Gorman, J. F.

ILLINOIS
Bushnell—Ritchey, G. F.
Chicago—Baldwin, A., Jr.
Klaus, R. W.
LaForge, A. W.
Springfield—Haskins, H. F.

IOWA
Knoxville—Trimmer, F. M.

MASSACHUSETTS
Boston—Barney, W. O.
Macaluso, A.

MINNESOTA
Duluth—Collins, A. N.
Power, J. E.

MISSISSIPPI
Jackson—Hamilton, W. S.

MISSOURI
Windsor—Wall, H. M.

NEW YORK
Binghamton—Sears, H. C.
Brooklyn—Weinstein, I. S.
New York—Berkowitz, W.
Schur, A. T.

NORTH CAROLINA
Norton—McGuire, B. B.

NORTH DAKOTA
Bismarck—MacLachlan, T. M.

OREGON
Portland—Bloom, C. F.

PENNSYLVANIA
Philadelphia—Harrison, F. G.
Scranton—Donahue, J. P.
West Chester—Patrick, J. K.

TEXAS
Galveston—Aves, F. W.
Holley, A. S.
Houston—Dailey, L.
Herndon, R. F.
Shelbyville—Wintham, L. B.

VIRGINIA
Clifton Forge—Wolfe, H. C.

ORDERS TO OFFICERS OF THE MEDICAL CORPS; MEDICAL CORPS, NATIONAL ARMY; AND MEDICAL CORPS, NATIONAL GUARD

To Camp Crane, Allentown, Pa., for duty, from Williamsbridge, Col. DOUGLAS F. DUVAL.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Benjamin Harrison, Capt. JAMES H. BURNS.

To Camp Upton, L. I., N. Y., for duty, from Fort Hamilton, Lieuts. RANSOM S. ROBERTSON; from Fort Hancock, GEORGE E. G. NORTON; from Fort Howard, BERNARD O. THOMAS; from Fort Tilden, CHARLES F. McCARTY.

To Fort Douglas, Utah, for duty, from Camp Lewis, Lieut.-Col. EUGENE G. NORTHINGTON.

To Fort McPherson, Ga., for duty, from Fort Sam Houston, Major WILLIAM F. RICE.

To Fort Oglethorpe for instruction, Lieuts. JAMES F. COX, ORAMEL E. HANEY, ALVIN H. STANHOPE, HAROLD W. STANWOOD, E. C. A. STETSON, ARDENNE A. STOTT.

To Hoboken, N. J., for duty, from Camp Grant, Lieut.-Col. SAMUEL J. KOPETSKY.

To Syracuse, N. Y., as company surgeon, from Camp Grant, Major CHARLES R. CASTLEN.

To Williamsbridge, N. Y., for duty, from Hoboken, Lieut.-Col. WILLIAM L. SHEEP.

The following order has been revoked: *To Fort Dupont*, Delaware, for duty, from New York, Lieut.-Col. MARLBOROUGH C. WYETH.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Crane, Allentown, Pa., base hospital, from Camp Sheridan, Capt. JAMES L. BOWMAN, Union Springs.

To Camp Meade, Admiral, Md., base hospital, from Camp Sevier, Lieut. GILBERT A. RHODES, Troy.

To Camp Sherman, Chillicothe, Ohio, as assistant to camp surgeon, from Fort Oglethorpe, Major WILLIAM H. OATES, Mobile.

To Fort Oglethorpe for instruction, Capt. FRANK B. WILSON, Huntsville; Lieuts. CHARLES O. KING, Athens; CHALMERS H. MOORE, Birmingham.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Camp Dick, Major KOSCIUSKO W. CONSTANTINE, Roebuck Springs.

Arizona

To Fort Oglethorpe for instruction, Capt. CHARLES A. THOMAS, Tucson; from Douglas, Lieut. WILLIS E. McWHIRT, Safford.

To Fort Riley for instruction, Capt. EDMISTON DARRAGH, Bisbee.

Arkansas

To Camp Cody, Deming, N. M., for duty, from El Paso, Lieut. WHEELER S. McCALL, Barfield.

To Camp Fremont, Palo Alto, Calif., base hospital, Lieut. THOMAS E. SANDERS, Hot Springs.

To Fort Riley for instruction, Lieut. ADONIS SMITH, Hope.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. JOHN C. SIMPSON, Hamberg.

California

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. BUDD ROBBINS, Hanford; PHILIP J. CUNNANE, Los Angeles.

To Camp Cody, Deming, N. H., base hospital, Lieut. OTTO H. MUELLER, Hollywood.

To Camp Dodge Des Moines, Ia., for duty, from Fort Riley, Capt. ARTHUR M. McINTOSH, Berkeley.

To Camp Fremont, Palo Alto, Calif., base hospital, Capts. THOMAS R. McNAB, Los Angeles; JEROME B. THOMAS, Palo Alto; EDWARD K. HOPKINS, San Francisco; Lieuts. ALLEN L. COHN, WILLARD E. KAY, Ja., San Francisco; IRVING H. BETTS, Visalia. For duty, Capts. JAMES L. FLINT, Glendale; JOHN E. COLLORAN, CHARLES W. CRAIK, Los Angeles; ARTHUR F. BRADSHAW, Orange; Lieut. ROYAL R. BARONIDES, San Francisco.

To Camp Grant, Rockford, Ill., base hospital, from Fort Riley, Capt. ARTHUR M. McINTOSH, Berkeley; Lieut. JOSEPH K. SMITH, Bakersfield; from Fort Sill, Capt. THOMAS W. HOLMES, San Francisco.

To Camp Kearney, Linda Vista, Calif., base hospital, Capt. WALTER H. THORNE, Fresno; EDWARD W. BURKE, Redlands; HOWARD N. BROTHERS, JOHN WEHRLY, Santa Ana; WILLIAM E. BOZIER, Susanville.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Lewis, Capt. CHARLES E. SCHOFF, Davis. For duty, from Camp Fremont, Capt. JOSEPH H. CATTON, San Francisco; from Mineola, Lieut. JAMES DE ANGULO, Stanford University.

To Camp Travis, Fort Sam Houston, Texas, for duty, Capt. ALBERT R. ROGERS, OSCAR V. SCHROETER, Los Angeles.

To Fort Oglethorpe for instruction, from Fort Riley, Lieut. WILLIS H. HALL, Orange.

To Fort Riley for instruction, Capts. JOHN F. HULL, Alhambra; THEOPHILUS C. ROBINSON, Long Beach; HENRY A. BARCLAY, San Diego; Lieuts. EDWIN R. HARVEY, AUBREY E. HENDERLITE, WALTER B. HILL, Long Beach; ARTHUR A. McCLURKIN, Los Angeles; SAMUEL A. MARSDEN, Orange; FRED S. RYAN, San Jose.

To Garden City, L. I., N. Y., for duty, from Fort Riley, Lieut. JOSEPH K. SMITH, Bakersfield.

To Hoboken, N. J., base hospital, Capt. GEORGE G. HUNTER, Los Angeles; from Camp Crane, Lieut. FRED D. NORTHRUP, Pasadena.

To Mineola, L. I., N. Y., for instruction, from San Diego, Major WILLIAM R. REAM, San Diego.

To Morrison, Va., for duty, from Fort Riley, Lieut. BUDD ROBBINS, Hanford.

Canal Zone

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Major SURSE J. TAYLOR, Cristobal.

Colorado

To Azalea, N. C., as commanding officer, from Markleton, Major HENRY W. HOAGLAND, Colorado Springs.

To Camp Cody, Deming, N. M., base hospital, from Fort Sill, Major HARRY S. FINNEY, Denver.

To Camp Dodge, Des Moines, Iowa, base hospital, from Fort Oglethorpe, Lieut. MILTON A. BROEMSER, Holly. For duty, from Fort Riley, Capt. HARVEY E. HALL, La Junta.

To Camp Meade, Admiral, Md., base hospital, from Wiliamsbridge, Lieut. CHARLES S. PHALEN, Salida.

To Metuchen, N. J., for duty, from New Haven, Capt. WILBUR A. LITTLE, Canon City.

Connecticut

To Fort Oglethorpe, for duty, from New York, Lieut. ARTHUR S. GRANT, Hartford. For instruction, Lieuts. WILLIAM F. REARDON, JOHN H. I. SWEET, Ja., Hartford; PETER W. SKALDZIEN, Meriden.

Delaware

To Camp Upton, L. I., N. Y., for duty, from Fortress Monroe, Lieut. JOHN B. RUTHERFORD, Wilmington.

District of Columbia

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Capt. GUY S. SAFFOLD, Washington.

To Fort Oglethorpe, for instruction, Major ABRAM B. HOOE, Lieuts. JAMES B. C. CUSTIS, MYER J. HERSCHMAN, Washington.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Fairfield, Capt. CHARLES W. HYDE, Washington.

To Syracuse, N. Y., as sanitary inspector, from Fort Oglethorpe, Capt. JAMES S. HOUGH, Washington.

Florida

To Camp Wadsworth, Spartanburg, S. C., for duty, from Eastern Department, Lieut. ROBERT F. McLEOD, Otter Creek.

To Fort Oglethorpe for instruction, Capt. LEON A. PEEK, West Palm Beach.

Georgia

To Camp Crane, Allentown, Pa., base hospital, from Camp Pike, Lieut. AUGUSTUS H. FRYE, Griffin; from Camp Wheeler, Capt. WILBORN A. UPCHURCH, Atlanta.

To Camp McClellan, Anniston, Ala., base hospital, Capt. MARVIN M. HEAD, Zebulon.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. WILLIAM R. DANCY, Savannah; Lieut. QUINNEY A. MULKEY, Millen; from Fort Oglethorpe, Lieut. WILLIAM F. JENKINS, Midland.

To Camp Upton, L. I., N. Y., for duty, from Camp Meigs, Lieut. REUBEN T. CAMP, Fairburn.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. CONRAD L. ALLGOOD, Scottdale.

To Fort Oglethorpe for instruction, Capts. EMMETT DEW. HIGHSMITH, Atlanta; JOHN L. FRAZER, ROBERT M. WARE, Atlanta; DEWITT PAYNE, Danielville; OWEN T. KENYON, Dawson; ARTHUR D. LITTLE, Thomasville; Lieuts. ODOM O. FANNING, FRANK J. GIUFFRIDA, ARCHIBALD SMITH, Atlanta; WILLIAM F. WOFFORD, Cartersville; ROY C. KEMP, Cisco; JAMES T. HENLEY, College Park; CARLTON A. LEE, Covington; VIRGIL G. WILLIAMS, Odessadale; JAMES E. MORRISON, Savannah; ROBERT W. TODD, Tifton; from Army Medical School, Lieut. RUSSELL F. WILSON, Atlanta.

To Fort Sill, Okla., for duty, from West Point, Mass., Lieut. ERNEST R. HARRIS, Bethlehem.

Idaho

To Camp Lewis, American Lake, Wash., base hospital, Capt. ELMER G. BRADDOCK, Lewiston.

To Camp Pike, Little Rock, Ark., for duty, from Fort Riley, Lieut. DEWITT P. HIGGS, Fairfield.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Sherman, Lieut. CHARLES O. MOORE, Paris.

Illinois

To Camp Alfred Vail, Little Silver, N. J., for duty, from Fort Oglethorpe, Lieuts. DONALD E. MACGREGOR, JOHN T. O'CONNELL, Jr., Chicago.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. BENJAMIN E. FILLIS, Hubbard Woods. For duty, from Fort Riley, Capt. DANIEL B. HAYDEN, Lieuts. FREDERICK W. SLOBE, Chicago; HUGH I. CONN, Metcalf; from Jackson Barracks, Lieut. NEIL E. FUNK, Chicago. To examine the command for nervous and mental diseases, from Fort Screven, Lieut. WALTER C. COOK, Peoria.

To Camp Colt, Gettysburg, Pa., for duty, from Fort Oglethorpe, Lieut. HENRY SHACOFF, Chicago.

To Camp Crane, Allentown, Pa., base hospital, from Camp Pike, Capt. RAYMOND C. GILLOGLY, Newman; Lieut. CECIL J. JOHNSTON, Canton.

To Camp Grant, Rockford, Ill., base hospital, Capt. GEORGE McINTYRE, Chicago.

To Camp Custer, Battle Creek, Michigan, as assistant to division surgeon, from Fort Riley, Capt. EDWARD M. MIKKELSEN, Winnetka. Base hospital, Capt. EARL L. HENDRICKS, Lanark.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. HARRY L. SCHULTZ, Decatur. For duty, from Fort Oglethorpe, Lieuts. REUBEN C. HANCHETT, CLAUDE A. LINK, Chicago.

To Camp Kearney, Linda Vista, Calif., base hospital, from Fort Riley, Major JAMES F. PERCY, Galesburg.

To Camp Logan, Houston, Texas, base hospital, from Walter Reed General Hospital, Capt. CLARENCE W. GEYER, Aurora.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. JAMES L. HAMMOND, Wilmette.

To Camp Meade, Admiral, Md., base hospital, from Camp MacArthur, Lieut. PHILIP ROSENBLUM, Chicago.

To Camp Pike, Little Rock, Ark., base hospital, Capt. GEORGE W. BOOT, Evanston.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Jackson, Capt. THOMAS E. CHERRY, Cowden.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Riley, Capt. CHARLES R. LOCKWOOD, Kankakee.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieuts. JOHN H. MOORE, ITALO F. VOLINI, Chicago. To examine the command for nervous and mental diseases, from Jackson Barracks, Capt. WILSON K. DYER, Kankakee.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieuts. LEMUEL B. SHORT, East St. Louis; RICHARD F. HERNDON, Springfield; From Fort Oglethorpe, Lieut. GLADSTONE C. CONLIN, Springfield. For duty, Capts. ROBERT H. BUCK, WILLIAM S. RYAN, CHARLES E. SHARP, Chicago; Lieut. WILLIAM R. FLETCHER, Joliet; from Fort Riley, Capt. WALTER L. HOUGHLAND, Peoria; from Fort Sheridan, Lieut. CHARLES E. RISELING, Murphysboro.

To Camp Travis, Fort Sam Houston, Texas, as camp psychiatrist, Capt. WILLIAM O. KROHN, Chicago. Base hospital, Capt. ERNEST S. MOORE, Chicago. For duty, Lieut. VINCENT J. O'CONNOR, Ottawa.

To Camp Upton, L. I., N. Y., base hospital, Lieuts. JOHN F. W. ROST, Minier; HOMER E. VAN EPPS, Sterling.

To Canal Zone for duty, from Camp Grant, Lieut. WILLIAM H. GEHL, Chicago.

To Fort Oglethorpe for instruction, Capts. PHILIP C. W. JOHANNES, LEROY P. KUHN, HENRY SCOTT, Chicago; ARTHUR R. RIKLI, Naperville; FRANK O. RINGNELL, Rock Island; BENJAMIN F. HOCKMAN, Sumner; Lieuts. JUSTUS C. GARARD, GOLDER L. McWHORTER, CLIFFORD S. POWELL, Chicago; GUY L. McKINNEY, East Alton; ALBERT J. WEIRICK, Marseilles; ROSCOE W. McKINLEY, Monmouth; George H. WILSON, Mount Carmel; WALTER J. PRICE, Peoria; HORNER F. MOORE, ARTHUR PEARMAN, Rockford; CHARLES W. SEEVER, Sheldon; GEORGE T. MEACHAM, Taylorville; JOHN A. McGEE, Virginia; from Fort Riley, Lieuts. RICHARD F. GREENING, JOSEPH MOLES, SYLVIO A. SCIARETTA, Chicago.

To Fort Riley for instruction, Capts. TREVALE C. COGGESHALL, Henry; EUGENE P. SULLIVAN, Morrison; GEORGE H. COTTRALL, Savanna.

To Garden City, L. I., N. Y., for duty, from Fort Riley, Lieut. WILLIAM RUPP, Chicago; from San Antonio, Lieuts. FRANCIS V. CARBERRY, Chicago; HARRY E. BROWN, Peoria.

To Hoboken, N. J., base hospital, from Camp Devens, Capt. ANSON LeR. NICKERSON, Momence; from Camp Meade, Lieut. LOUIS SAVITSKY, Cicero.

To Jefferson Barracks, Mo., for duty, from New Haven, Lieut. EMERY H. DUFOUR, Chicago.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from South San Antonio, Capt. EUGENE CARY, Chicago.

To Morrison, Va., for duty, from Fort Oglethorpe, Lieut. FRANK L. FORTELKA, Chicago; from Fort Riley, Lieut. FREDERICK W. SLOBE, Chicago.

To New Haven, Conn., for duty, Capts. ARTHUR C. KLEUTGEN, WALTER H. WATTERSON, Chicago.

To Newport News, Va., for duty, from Pittsburg, Lieut. ERNEST J. WORTHINGTON, Olney.

To Richmond, Va., Richmond and West Hampton Colleges, for duty, from Camp Custer, Capt. ALBERT B. KEYES, Chicago.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. LOUIS R. KRATZE, Chicago.

To Syracuse, N. Y., for duty, from Camp A. A. Humphreys, Lieut. LEON E. DALLWIG, Chicago.

To Williamsbridge, N. Y., for duty, from Camp Cody, Major WILLIAM FULLER, Chicago.

To report to the commanding general, Central Department, for assignment to duty, Capt. OTTO T. HANSON, Chicago.

Indiana

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. GEORGE H. VAN KIRK, Kentland; Lieut. OLIVER M. JOHNSON, Kokomo.

To Camp Dodge, Des Moines, Iowa, base hospital, from Fort Oglethorpe, Lieut. SAM W. HOOKE, Noblesville. For duty, from Fort Benjamin Harrison, Lieut. CHARLES J. COOK, Indianapolis; from Fort Snelling, Capt. ROSS B. BRETZ, Evansville.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. CHARLES BOSENBURY, South Bend; Lieut. LAW E. SOMERS, Craigville. For duty, Lieuts. ROSS A. COOPER, Carmel; MARVIN F. FISHER, Le Fontaine.

To Camp Lee, Petersburg, Va., base hospital, from Camp Hancock, Lieut. JOHN W. THOMSON, Garrett. For duty, Lieut. WALTER P. ROBINSON, Boonville.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. CARL V. DAVISSON, West Lafayette.

To Camp Upton, L. I., N. Y., base hospital, Capt. ROLLO J. PEIRCE, Richmond.

To Cape May, N. J., for duty, Lieut. FREDERICK C. POTTER, Indianapolis.

To Fort Oglethorpe for instruction, Capts. JAMES W. BENHAM, Columbus; HERBERT A. RAY, MAURICE I. ROSENTHAL, Fort Wayne; DULANIA S. WIGGINS, New Castle; CHARLES C. DUBOIS, Warsaw; Lieuts. PERRY L. FERRY, Akron; ORRIS O. MELTON, Hammond.

To Fort Ontario, N. Y., base hospital, from Plattsburg Barracks, Major THOMAS B. C. KEENE, Indianapolis.

To Fort Riley for instruction, Capts. VERNON C. PATTON, ROLAND A. WILTSHIRE, Morristown; ROBERT A. CUSHMAN, Princeton; MARC F. HUNN, Shipshowanam; Lieuts. EARL J. CRIPE, Atwood; LEON E. WETSELL, Bloomington; ROBERT W. HAWKINS, Brazil; PAUL C. GRAHAM, Columbus; EDMUND C. GRAY, Greensburg; FRANCIS H. RILEY, Linnsburg; WALTER S. GIVEN, MARTIN E. PATTON, Indianapolis; HERMAN S. BOWLES, Muncie; SILVA I. GREEN, St. Bernier; CLAUDE S. BLACK, Warren; CLARENCE E. BOYD, West Baden; VIERL C. GRIFFIS, Williamsburg.

To Mineola, L. I., N. Y., for instruction, from Austin, Texas, Lieut. BYRON J. PETERS, Kokomo.

To New Haven, Conn., for duty, Capt. MALCOLM L. SAMMS, Batesville.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Upton, L. I., N. Y.*, base hospital, Lieut. HARRY E. GOWLAND, Valparaiso.

Iowa

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Lieut. CHAS. E. BLOCK, Davenport.

To Camp Dodge, Des Moines, Ia., base hospital, Capt. CHARLES S. JAMES, Centerville; Lieut. CHANNING G. SMITH, Granger. For duty, from Fort Riley, Lieuts. ALBERT J. CHARLTON, Lowden; from Fort Sheridan, Lieut. EDWARD A. COUPER, Britt.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. WALTER W. MURPHY, Lewis.

To Camp Grant, Rockford, Ill., base hospital, Lieut. HARVEY RANSOM, Des Moines.

To Camp Lee, Petersburg, Va., base hospital, from Camp Greene, Lieut. FRED W. NIEHAUS, McClelland. For duty, from Fort Oglethorpe, Lieut. GEORGE S. BAWDEN, Davenport.

To Camp MacArthur, Waco, Texas, base hospital, Capt. EVAN S. EVANS, Grinnell; Lieuts. GEORGE BRAUNLICH, Davenport; ALBERT D. SMITH, Mason City; WINFIELD M. WHITE, Sioux City. For duty, Lieut. LELAND O. CAREY, Des Moines; from Fort Riley, Lieut. LAURELL LAV. LUGAR, Corydon.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Wadsworth, Capt. MEREDITH B. MURRAY, Macedonia.

To Camp Meade, Admiral, Md., base hospital, from Camp Lee, Lieut. ERWIN J. GOTTSCH, Le Mars.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Sherman, Capt. RANSOM D. BERNARD, Clarion.

To Camp Sheridan, Montgomery, Ala., to examine the troops for tuberculosis, from Camp Joseph E. Johnston, Capt. EDWIN S. GILLESPIE, Wenona.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. GEORGE W. KOCH, Sioux City.

To Fort Oglethorpe for instruction, Lieut. LLOYD T. REED, Gravity; from Fort Riley, Lieut. AUDLEY E. NELSON, Sidney.

To Fort Riley for instruction, Capt. HENRY J. TALBOY, Onawa; Lieuts. CHARLES M. HAZARD, Arlington; HARRY R. SECOY, Sioux City; HUGH S. DETCHON, Victor; MERRITT N. GERNSEY, Waverly.

Kansas

To Camp Abraham Eustis, Lee Hall, Va., camp hospital, from Camp Lee, Capt. JOHN F. RUDOLPH, Belle Plaine.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. JOHN R. CAMPBELL, Coats.

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Capts. HARRY L. CHAMBERS, Lawrence; HERBERT ATKINS, Pratt.

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Leeavenworth, Lieut. WILLIAM H. GREIDER, Topeka.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. ROBERT B. STEWART, Topeka.

To Camp Lewis, American Lake, Wash., as assistant to division surgeon, from Fort Riley, Lieut. CHESTER O. SHEPARD, Independence.

To Fort Logan H. Roots, Ark., base hospital, Lieut. FRED G. POULTRE, Horton.

To Fort Oglethorpe for instruction, Lieut. CHESTER H. SMITH, Pittsburg.

To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. JOSEPH C. SHAW, Holton. For instruction, Capts. CLARENCE E. BOUDREAU, Eldorado; GEORGE C. MAHAFFY, Ottawa; Lieuts. NOBLE E. NAYLOR, Centropolis; EARL G. PADFIELD, Salino.

To Fort Worth, Texas, for duty, from Fort Sam Houston, Lieut. ORVILLE O. MOORE, Topeka.

To New York City, Neurological Institute, for instruction, Lieut. ALDEN L. CRITTENDEN, Wichita.

Kentucky

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Capt. EDWARD C. BARLOW, Georgetown.

To Camp Custer, Battle Creek, Mich., for duty, from Camp Lewis, Lieut. STANLEY E. STROUBE, Edgoten.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Sevier, Lieut. JAMES M. STAUGHTON, Covington.

To Camp Grant, Rockford, Ill., base hospital, from Camp Sherman, Lieut. CHARLES E. VIDT, Russell.

To Camp Greene, Charlotte, N. C., base hospital, Capt. JOHN T. BROWN, Paris.

To Camp Lee, Petersburg, Va., for duty, from Camp Sevier, Lieut. RICHARD R. SNOWDEN, Ravenna.

To Camp Sevier, Greenville, S. C., base hospital, from Walter Reed General Hospital, Major JOSEPH G. SHERRILL, Louisville.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Camp Gordon, Lieut. JOHN W. DYER, Louisville.

To Canal Zone, for duty, from Southern Department, Capt. JETHRA HANCOCK, Louisville.

To Fort Benjamin Harrison, base hospital, Capt. JAMES A. ORR, Paris.

To Fort Oglethorpe for instruction, Capts. HENRY C. OSBORN, Blaine; JASPER F. BRYANT, Corbin; JOHN H. HOHNSTEDT, Fort Thomas; AUSTIN BELL, Hopkinsville; SAMUEL L. POTTINGER, Louisville; DAVID J. WILLIAMS, Richmond; Lieuts. HENRY Y. SLATON, Greenville; HARRY G. HERRING, JOHN S. McGINNIS, Lexington; JAMES R. COTTELL, Louisville; BURTON A. WASHBURN, Paducah; CHARLES B. BARD, Water Valley; ISAAC H. BROWNE, HOWARD LYON, Winchester.

Louisiana

To Camp Lee, Petersburg, Va., base hospital, Lieut. THOMAS LATICLAIS, New Orleans.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Eastern Department, Lieut. JOEL A. WILKINSON, Homer.

To Fort McHenry, Md., base hospital, Lieuts. HAROLD J. GONDOLF, New Orleans; from Camp Jackson, JOSEPH C. MENENDEZ, New Orleans.

To Fort Oglethorpe for instruction, Lieut. PAUL T. THIBODEAUX, Donaldsonville.

To Newport News, Va., for duty, from Colgate Creek, Lieut. ERASTUS L. MILLER, Longville.

Maine

To Fort Oglethorpe for instruction, Lieuts. HERBERT L. LOMBARD, Bridgton; LESTER H. TRUFANT, Norway.

To New Haven, Conn., for duty, Capt. CARL R. O'BRIEN, Bangor.

Maryland

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp MacArthur, Capt. RASTUS R. NORRIS, Crisfield.

To Lakewood, N. J., for duty, from Camp Wheeler, Lieut. JOHN T. KING, Jr., Baltimore.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. MORLEY D. McNEAL, Baltimore.

To Camp Jackson, Columbia, S. C., for duty, Lieut. BRYANT E. HARRELL, Baltimore.

To Camp Meade, Admiral, Md., base hospital, Capt. STANDISH McGLEARY, Baltimore.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieut. BERTRAM J. SANGER, Baltimore.

To Camp Upton, L. I., N. Y., for duty, from Fort Howard, Capt. FIRMADGE K. NICHOLS, Baltimore; from Rochester, N. Y., Lieut. SAMUEL J. PRICE, Queenstown.

To Cape May, N. J., for temporary duty, Capt. LEE COHEN, Baltimore.

To Fort Oglethorpe for instruction, Capts. HARRY W. GADDES, HENRY J. WALTON, Baltimore; Lieuts. HARRIS C. BARROWS, Augusta; WALTER T. ANDERSON, JOHN H. BAIRD, LEO BRADY, WALTER L. DENY, THEODORE S. MOISE, CARL C. NOHE, JOSEPH P. SHEARER, HENRY H. STANSBURY, Baltimore; EARNEST L. SCHAIBLE, Cary; GEORGE B. LYNCH, Hillsdale.

To Lakewood, N. J., for duty, Lieuts. WILLIAM L. BROSIUS, Jr., CLAUDE V. McMEEN, Baltimore; from Fort Oglethorpe, Lieut. HARRY L. ROGERS, Baltimore.

To Otisville, N. Y., for duty, from New Haven, Lieut. WILLIAM B. DAVIDSON, ALBERT EISENBERG, Baltimore.

To Syracuse, N. Y., for duty, from Camp Meade, Capt. HENRY N. SISCO, Baltimore.

To Washington, D. C., for duty in the Surgeon-General's Office, Major JOHN HOWLAND, Baltimore.

Massachusetts

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, and on completion *to his proper station*, Capt. ERNEST B. YOUNG, Boston.

To Camp Abraham Eustis, Lee Hall, Va., Camp Hospital, from Camp Meade, Lieut. EZEKIEL PRATT, Arlington.

To Camp Devens, Ayer, Mass., base hospital, Capts. CHARLES S. CAPELLE, ROBERT H. VOSS, Boston; EDWARD J. HUSSEY, Holyoke; ROBERT G. LORING, Lincoln; JOHN T. McGILLICUDDY, Worcester; Lieuts. EDWARD J. BREARTON, Boston; FREDERICK E. WITHEE, Highlands. For duty, from Army Medical School, Lieut. CHARLES W. PEABODY, Boston.

To Camp Dix, Wrightstown, N. J., base hospital, Capt. DANIEL C. DENNETT, Winchester; Lieuts. THOMAS J. NORTON, Pittsfield; FRANK J. QUIST, Worcester.

To Camp Dodge, Des Moines, Iowa, base hospital, from the Surgeon-General's office, Major ALEXANDER S. BEGG, Boston.

To Camp Gordon, Atlanta, Ga., for duty, Lieut. WALTER J. DONOVAN, Springfield, from Camp Sevier, Capt. WILLIAM C. SHEEHY, New Bedford.

To Camp Lee, Petersburg, Va., base hospital, Capt. FREEMAN H. HIBBON, Brookline.

To Camp Meade, Admiral, Md., base hospital, from Williamsbridge, Lieut. THOMAS W. WICKHAM, Boston.

To Camp Sheridan, Montgomery, Ala., as camp psychiatrist, from Camp Sherman, Capt. HENRY L. STICK, Baldewinville.

To Camp Upton, L. I., N. Y., base hospital, Capt. RICHARD HINCHEY, Waltham.

To Fort Oglethorpe for duty, from New York, Lieut. WHITMAN K. COFFIN, West Medford. For instruction, Capts. WILLIAM G. TURNER, Fall River; FRED H. ALLEN, Holyoke; WILMARTH Y. SEYMOUR, State Farm; Lieuts. HERBERT G. ROCKWELL, Amherst; LAWRENCE C. SWAN, Beverly; LOUIS GORDON, Boston; JOSEPH L. MARA, Brockton; MARSHALL L. ALLING, Lowell; CHARLES L. HOITT, Lynn; FRANKLIN P. LOWRY, Newton; MICHAEL E. COONEY, Northampton; HARRIS S. POMEROY, Peabody.

To Metuchen, N. J., for duty, Capt. THOMAS COX, Fall River.

To New Haven, Conn., for duty, Capt. HENRY F. R. WATTS, Roxbury. *To Yale Army Laboratory School*, for instruction Lieut. DAVID S. DOOMAN, South Ashfield. For temporary duty, from Camp A. A. Humphreys, Lieut. FRANK B. BERRY, Cambridge.

To Rockefeller Institute, for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. LEON C. HAVENS, Cambridge. For instruction in the treatment of infected wounds, and on completion *to Camp Meade*, Admiral, Md., base hospital, Lieut. GEORGE F. H. BOWERS, Worcester. On completion to Camp Sevier, Greenville, S. C., base hospital, Lieut. MATTHEW P. MAHONEY, Lowell. On completion *to Camp Upton, L. I., N. Y.*, base hospital, Capt. DANIEL J. HURLEY, Charlestown. On completion *to Camp Wadsworth*, Spartanburg, S. C., base hospital, Lieut. CARL A. SCHILLANDER, Springfield.

To Syracuse, N. Y., for duty, Capt. CHARLES B. STEVENS, Worcester; from Camp Devens, Lieut. EDWARD A. ADAMS, Newton.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. ADOLPHUS D. ROOD, Whitman.

To Washington, D. C., for duty in the Surgeon-General's Office, Capt. HARRY A. BARNES, Boston; from Camp Devens, Major WALTER B. LANCASTER, Boston; from Walter Reed General Hospital, Capt. FRANK B. GRANGER, Boston.

To Williamsbridge, N. Y., for duty, Capt. GEORGE L. GABLER, Holyoke; Lieut. HENRY J. LUPIEN, Brockton.

Michigan

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. IRA D. McCOY, Cass City.

To Camp Devens, Ayer, Mass., base hospital, from Rockefeller Institute, Major ROY B. CANFIELD, Ann Arbor; Lieut. GLENN B. CARPENTER, Detroit.

To Camp Meade, Admiral, Md., base hospital, from Camp Custer, Lieut. DAUNE W. CRANKSHAW, Lawrence.

To Fort Oglethorpe for instruction, Capts. CONRAD GEORGE, Jr., Ann Arbor; WALTER T. PARKER, Corunna; CLARENCE E. SIMPSON, Detroit; Lieuts. FRED M. ROHOW, Bessemer; ARTHUR M. THOMPSON, Grand Rapids; WILLIAM C. GIBSON, Petosky; GEORGE M. KESL, Port Huron.

To Fort Riley and *Fort Leavenworth, Kan., Scott Field*, Bellevue, Ill., *Fort Reno* and *Fort Sill, Okla.*, and *Call Field*, Wichita Falls, Texas, for duty, Lieut. WILLIAM R. CHYNOWETH, Battle Creek.

To Hoboken, N. J., for duty, from Camp Upton, Lieut. LEO J. DRETZKA, Detroit.

To Metuchen, N. J., for duty, Capt. WALTER H. BOSTWICK, Algonac; Lieut. GUY C. CONKLE, Boyne Falls.

To Rockefeller Institute for instruction in the treatment of infected wounds, from New York City, Major ROY B. CANFIELD, Ann Arbor.

To report by wire to the commanding general, Central Department, for asignment to duty, Capt. ARTHUR D. HOLMES, Detroit.

To the inactive list, from Hoboken, Major UDO J. WILE, Ann Arbor.

Minnesota

To Camp Cody, Deming, N. M., for duty, from Fort Sam Houston, Lieut. ALBERT M. LARSON, Jasper.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Snelling, Lieut. THOMAS F. RODWELL, White Earth.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Grant, Capt. CHARLES R. BALL, St. Paul.

To Camp Lee, Petersburg, Va., base hospital, from Fort Riley, Major JOHN C. SESSIONS, Minneapolis. For duty, Lieut. CHARLES H. JOHNSON, Spring Valley.

To Camp MacArthur, Waco, Texas, for duty, from Fort Riley, Capt. PAUL E. KENYON, Wadena.

To Camp Sherman, Chillicothe, Ohio, for duty, Lieut. ROBERT O. URBAN, Minneapolis; from Fort Riley, Lieut. GILBERT HENDERICKSON, Lewiston.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Sill, Lieut. HENRY I. TWISS, St. Paul.

To Fort Oglethorpe for instruction, Lieut. SELMER M. JOHNSON, Buhl.

To Fort Riley for instruction, Capt. JAMES L. MILLER, Breckenridge; Lieuts. MORTON P. MORSE, LeRoy; AUSTIN VAN B. DENMAN, Mankato; FERDINAND G. BENN, Minneapolis; JOSEPH FINBERG, SHERMAN S. HESSELGRAVE, St. Paul.

Mississippi

To Buffalo, N. Y., Broadway Auditorium, for duty, from Fort Oglethorpe, Lieut. ROBERT GOING, Vicksburg.

To Camp A. A. Humphreys, Accotink, Va., base hospital, Capt. THOMAS J. HOUSTON, Meridian.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. WENDALL H. WILLIAMS, Tunica.

To Camp Grant, Rockford, Ill., base hospital, from New York City, Major JOHN W. BARKSDALE, Winona.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. MONTIEZUMA PORTER, Water Valley.

To Camp Jackson, Columbia, S. C., for duty, Lieut. JULIAN T. BAILEY, Meridian.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Sheridan, Lieut. MAURY H. McRAE, Corinth.

To Camp Sheridan, Montgomery, Ala., to examine the command for nervous and mental diseases, from Jackson Barracks, Lieut. THOMAS G. CLEVELAND, Meridian.

To Camp Wheeler, Macon, Ga., base hospital, Capt. EUGENE G. DENSON, Meridian.

To Fort Oglethorpe for instruction, Capts. ROBERT M. BUTLER, Jackson; WALTER P. GRAY, Waynesboro; Lieuts. OSCAR O. JONES, Booneville; JAMES I. WOODWARD, Picayune; BIRD H. HIGDON, Sunflower.

Missouri

To Camp Cody, Deming, N. M., base hospital, Lieut. ERNEST B. RIDER, Kansas City. For temporary duty, from St. Louis, Major EUGENE L. OPIE, St. Louis.

To Camp Crane, Allentown, Pa., for duty, from Fort McHenry, Major WILLIAM E. LEIGHTON, St. Louis.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeon, from Lakewood, Lieut. GREENE D. McCALL, Fulton. For duty, from Fort Oglethorpe, Lieut. GERHARD KAEMMERLING, Joplin.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. FRANCIS J. PFEFFER, St. Louis; from Army Medical School, Capt. McDOWELL BOTTS, Mexico. For duty, Lieut. HENRY W. MEISCH, Manchester.

To Camp Grant, Rockford, Ill., base hospital, Lieut. ELZA L. JOHNSTON, Waverly.

To Camp Jackson, Columbus, S. C., base hospital, from Fort Oglethorpe, Capt. FRANK L. BIGSBY, Kirksville. For duty, Lieut. COMMODORE E. BENNETT, Joplin.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Jackson, Lieut. CLARE J. CLAPSADDLE, St. Louis.

To Camp Las Casas, San Juan, P. R., base hospital, from Fort Sill, Lieut. JAMES L. DOWNING, Oak Grove.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Wadsworth, Lieut. MADISON J. PULLIAM, St. Louis.

To Camp Meade, Admiral, Md., base hospital, from Walter Reed General Hospital, Capt. WALTER C. G. KIRCHNER, St. Louis.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. CHARLES A. LEAVY, St. Louis.

To Camp Travis, Fort Sam Houston, Texas, for duty, Capt. CHARLES H. ALTHEIDE, St. Louis.

To Fort Oglethorpe for instruction, Capts. CYRUS D. CANTRELL, FRITZ J. MOENNIGHOFF, Kansas City; WILSON J. FERGUSON, Sedalia; JOHN McH. DEAN, GEORGE A. MELLIES, St. Louis; Lieuts. CHARLES H. NEWCOMB, Clinton; ROSS H. UNDERWOOD, Kansas City; JOHN D. MOULDER, Linn Creek; EDWARD S. MURPHY, St. Louis; from Fort Riley, Lieut. WILLIAM B. INMAN, St. Louis.

To Fort Riley for instruction, Major MAX A. GOLDSTEIN, St. Louis; Capts. VINCIL B. JANES, Cameron; EZEKIEL M. BARTLETT, Clarksville; JOHN FLOYD KOOGLER, Kansas City; WILLIAM E. WALKER, La Monte; WILLIAM E. RUDD, Salem; FRANK R. MORLEY, Sedalia; EDWIN C. HILL, Smithville; HERMAN A. HANSER, St. Louis; Lieuts. CHARLES H. McHAFFIO, Ash Grove; LESLIE B. MILLER, Kansas City; JOSEPH W. MILLS, Owensville; EDWARD F. HIGDON, St. Joseph.

To Mineola, L. I., N. Y., for duty, from Houston, Capt. THEODORE S. BLAKESLEY, Kansas City.

To Morrison, Va., for duty, from Fort Riley, Lieut. FLOYD B. RICKETTS, Leslie.

To New Haven, Conn., Yale Army Laboratory School, for instruction in bacteriology, Lieut. ELBERT V. KRING, St. Louis.

To Newport News, Va., for duty, from Fort Monroe, Lieut. ALOIS E. TUREK, St. Louis.

To New York City, Neurological Institute, for instruction, Lieuts. CHARLES B. HYNDMAN, St. Louis.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Camp Zachary Taylor, Lieut. PATRICK McGENNIS, St. Louis.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army School* for duty, Lieut. OSCAR F. BRADFORD, Columbia. For instruction in the treatment of infected wounds, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, Capt. WALTER U. KENNEDY, St. Louis.

To St. Louis, Mo., Signal Corps Aviation School, for duty, Lieut. JESSE J. BURDICK, St. Louis.

To Syracuse, N. Y., for duty, from Camp Dodge, Lieut. GEORGE H. MORELAND, Kansas City.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. WILLIAM P. DYSART, Columbia; Lieut. ARTHUR J. DECKER, Gray Ridge.

Montana

To Camp Lewis, American Lake, Washington, base hospital, Capt. EDGAR F. DODDS, Missoula.

To Fort Logan H. Roots, Ark., base hospital, Lieut. HUGH A. MACMILLAN, Dillon.

To Fort Oglethorpe for instruction, from Fort Riley, Lieut. CHARLES A. GARDNER, Columbus.

Nebraska

To Camp Crane, Allentown, Pa., base hospital, from Camp Pike, Capt. WILBER K. RILEY, Wisner.

To Camp Lee, Petersburg, Va., for duty, Capt. SETH E. RAGAN, Seward.

To Camp Sevier, Greenville, S. C., base hospital, from Walter Reed General Hospital, Capt. JAMES S. TAYLOR, Steele City.

To Fort Oglethorpe for instruction, Majors SAMUEL R. HOPKINS, Hastings; ALVA S. PINTO, Omaha; Capt. GROVE H. RATHBUN, Fremont; Lieut. ERNEST G. KIECK, Springfield.

To Fort Riley for instruction, Capt. HARVEY L. STARKEY, Wood River; Lieuts. LEE A. N. DELANNEY, Belgrade; THOMAS J. VANDERHOEF, Rising City.

To Mineola, L. I., N. Y., for duty, from Lonoke, Ark., Capt. CLAUDE T. UREN, Omaha.

To New Haven, Conn., for duty, Capt. LOUIS S. B. ROBINSON, Lincoln.

To Syracuse, N. Y., for duty, from Camp Dodge, Capt. JOSEPH A. HENSKE, Omaha.

New Hampshire

To Camp Dodge, Des Moines, Iowa, for duty, from Camp Perry, Capt. JOHN B. WARDEN, Whitefield.

To Camp Sevier, Greenville, S. C., base hospital, from Jefferson Barracks, Lieut. WALTER L. BARBOUR, Colebrook.

To Camp Pike, Little Rock, Ark., for duty, from Fort Snelling, Major AMOS C. STRAW, Manchester.

To Fort Oglethorpe for instruction, Lieut. EZRA A. JONES, Manchester.

New Jersey

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. FREDERICK H. MORRISON, Newton.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. JOHN A. HOLLAND, Montclair.

To Camp Grant, Rockford, Ill., base hospital, from Camp Wheeler, Capt. ALBERT N. JACOB, Sparta.

To Camp Jackson, Columbia, S. C., for duty, Capt. SAMUEL H. SULOUFF, Jersey City.

To Camp Kearney, Linda Vista, Calif., with the board examining the command for tuberculosis, from Fort Riley, Major RICHARD BEW, Atlantic City.

To Camp Lee, Petersburg, Va., for duty, Capt. WILLIAM S. FOSTER, Newark.

To Fort Logan H. Roots, Ark., base hospital, Capt. FRANK F. McDEDE, Paterson.

To Fort Oglethorpe for instruction, Capts. JOSEPH L. FEWSMITH, ALBERT S. HARDEN, Newark; RAYMOND DEW. BAKER, Summitt; Lieuts. JOHN B. BOYD, Farmingdale; THOMAS H. LEGGETT, JR., Plainfield; WILLIAM G. McCORMACK, Whippany.

To South Baltimore, Md., for duty, from Fort Monroe, Lieut. PAUL O'BRIEN, East Rutherford.

To Syracuse, N. Y., for duty, from Fort Ontario, Major ARTHUR E. THOMPSON, East Orange; Capt. MAXWELL G. KEELER, Weewauken.

New Mexico

To Fort Riley for instruction, Lieuts. MARCELLUS McCREARY, Magdalena; JAMES R. DAVIS, Silver City.

To Mineola, L. I., N. Y., for duty, from Fort Sill, Capt. GEORGE D. CARTER, Mesilla Park.

New York

To Camp A. A. Humphreys, Accotink, Va., base hospital, Capt. GRANT C. MEDILL, Ogdensburg. With the board examining troops for cardiovascular diseases, Lieut. ARTHUR E. NEERGAARD, New York; from Lakewood, Lieut. DANIEL SCHULTHEIS, New York.

To Camp Abraham Eustis, Lee Hall, Va., camp hospital, from Camp Lee, Capt. ERWIN G. MACFARLAND, Clinton; from Camp Meade, Lieut. L. EVERLOF, Brooklyn.

To Camp Beauregard, Alexandria, La., as orthopedic surgeon, from Hoboken, Lieut. LOUIS F. CRASSON, Brooklyn.

To Camp Cody, Deming, N. M., for duty, from San Benito, Lieut. WILLIAM H. CHAPMAN, Brooklyn.

To Camp Colt, Gettysburg, Pa., for duty, from Fort DuPont, Lieut. MERLE O. HOWARD, New York.

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Major BRUCE G. PHILLIPS, Capt. MATTHEW L. CARR, New York; Lieut. ROY I. MARSHALL, Rome. For duty, from Fort Oglethorpe, Lieut. HERMAN E. GAK, South Onondaga.

To Camp Custer, Battle Creek, Mich., with the board examining the command for nervous and mental diseases, Capt. JULIUS E. HAIGHT, Beacon.

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. EDWARD R. WARE, JOHN J. YOUNG, New York; from Rockefeller Institute, Capt. FRANK G. SCHAIBLE, New York.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. HERBERT E. SPERRY, Rochester. For duty, Lieuts. ARTHUR C. GLOVER, Buffalo; WALTER B. HILLMAN, Greece; from duty as a private, Lieut. JOSEPH A. RAPPEPORT, Brooklyn.

To Camp Grant, Rockford, Ill., base hospital, from Army Medical School, Lieut. WILLIAM L. McCANTY, Buffalo. For duty, from Camp Jackson, Capt. PHILIP S. POTTER, Syracuse.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. MEYER R. LEVINE, Brooklyn.

To Camp Jackson, Columbia, S. C., for duty, Lieut. JAMES E. SHORT, Buffalo.

To Camp Lee, Petersburg, Va., base hospital, Capt. TASKER HOWARD, Brooklyn.

To Camp Logan, Houston, Texas, base hospital, from Fort Oglethorpe, Lieuts. JULIUS M. BLANK, Brooklyn; ABRAHAM LEBENDIG, Rochester.

To Camp MacArthur, Waco, Texas, base hospital, from Fort Oglethorpe, Lieut. FLOYD F. BREESE, Elmira.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Wadsworth, Lieut. ROBERT F. McDONALD, New York; from New York, Capt. ARTHUR F. HOLDING, New York. For duty, from Fort Oglethorpe, Lieut. SIDNEY P. LEVEY, New York.

To Camp Meade, Admiral, Md., base hospital, Lieut. JOSEPH GRABENSTEIN, Syracuse.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Custer, Capt. WILLIAM B. REID, Rome.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Devens, Major LEWIS T. GRIFFITH, New York.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. RICHARD W. MORIARITY, New York; from Camp Custer, Capt. JULIUS E. HAIGHT, Beacon.

To Camp Upton, L. I., N. Y., for duty, from Fort Totten, Capt. FLOYD W. HUNTER, Fort Totten. To examine the command for nervous and mental diseases, from Camp Devens, Capt. GEORGE A. SHARP, Beacon; from duty as a private, Lieut. ABRAHAM T. GOLDSTEIN, Syracuse.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. CHARLES E. PERKINS, New York. For duty, from Eastern Department, Capt. CLARENCE A. READ, New Rochelle; Lieut. BENJAMIN Brodie, New York.

To Canal Zone for duty, Capt. EDGAR T. RAY, New York; from Camp Sevier, Lieut. LEO EDELMAN, New York.

To Fort Des Moines, Ia., base hospital, from Fort Oglethorpe, Lieut. HARRY WRONKER, Rochester.

To Fort Leavenworth, Kan., for temporary duty, Major HERMAN M. ADLER, Keene Valley.

To Fort McHenry, Md., for duty, from Williamsbridge, Capts. HERBERT R. CHARLTON, Bronxville; WALTER S. WOODRUFF, Mount Vernon.

To Fort Oglethorpe for instruction, Capts. FRANCIS E. O'BRIEN, Auburn; WILLIAM NEUSS, Brooklyn; CHAUNCEY W. GROVE, Geneva; SAMUEL T. HUBBARD, New York; GARROTT VAN DER V. JOHNSON, Schenectady; WILLIAM N. MALONEY, Three Mile Bay; Lieuts. JULIUS B. BOEHM, JOHN H. BURKE, BENJAMIN M. EIS, SAMUEL WEISS, Brooklyn; RAYMOND G. LAPORT, Buffalo; HALLEY W. HAMMOND, Franklinville; CLARENCE L. FESSENDEN, Fulton; GUILFORD S. DUDLEY, HENRY C. FALK, HAROLD GLUCK, SAMUEL KULKIN, HARRY S. MARCLAY, GASTANO J. MECCA, New York; FRANKLIN A. KNOPE, Rochester; WALTER V. FLEMING, Syracuse; from Williamsbridge, Lieut. FREDERICK C. KELLER, New York.

To Fort Worth, Texas, for duty, from Fort Sill, Capt. PHILIP E. ROSSITER, Brooklyn.

To Lakewood, N. J., for duty, from Camp Sheridan, Major GEORGE P. COOPERNAIL, Bedford.

To Long Island City, L. I., N. Y., for duty, from Fort Oglethorpe, Capt. A. L. BENEDICT, Buffalo.

To Metuchen, N. J., for duty, Capt. JOHN B. LEDLIE, Saratoga Springs; from Fort Oglethorpe, Lieuts. EDWARD A. TWIST, Long Island City; AARON WEINBERG, New York.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Fairfield, Capt. EDWIN S. INGERSOLL, Rochester. For instruction, from Detroit, Capt. SAMUEL A. MUNFORD, Ithaca.

To New Haven, Conn., for duty, Capt. FREDERICK A. JOHNSON, Lieut. BERNARD C. BULLEN, New York; Lieuts. JAMES A. BRADBROOK, East Williamson; EDWARD H. GANLEY, New York. Yale Army Laboratory, for instruction, Lieut. CHARLES H. HOCHMAN, New York. For instruction in bacteriology, Capt. WILLIAM A. GROAT, Syracuse; Lieuts. ABRAHAM SCHULTZ, Brooklyn; STANLEY T. FORTUNE, New York.

To Newport News, Va., for duty, from Camp A. A. Humphreys, Lieut. DAVID PASHMAN, Brooklyn.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. ELMER A. CLARKE, Buffalo. On completion *to Camp Dix*, Wrightstown, N. J., base hospital, Capt. HARRY S. CAMPBELL, Otto. On completion *to Walter Reed General Hospital*, Tacoma Park, D. C., for duty, Lieut. CHARLES C. STEINHAUSER, Rochester.

To Otisville, N. Y., for duty, from New Haven, Lieut. JAMES H. STYGALL, New Bridge.

To Syracuse, N. Y., for duty, Lieuts. JOSEPH M. L. BRUNO, Brooklyn; BURKE C. HAMILTON, Goshen; from Camp Jackson, Lieuts. MAXWELL M. BOOXBAUM, HARRY F. GOCKLEY, New York; from Camp Meade, Capt. ELISHA W. BROWN, Mount Kisco.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. DAVID M. BLOOM, New York. For observation and treatment, from Philadelphia, Capt. CHARLES E. E. PANNACI, Gloversville.
To Williamsbridge, N. Y., for duty, from Camp Custer, Lieut. EDWARD J. HYLAND, Jamaica.

North Carolina

To Camp Lee, Petersburg, Va., base hospital, from Fort McPherson, Major CHARLES S. LAWRENCE, Winston-Salem.
To Camp Sheridan, Montgomery, Ala., for duty, from duty as an enlisted man, Lieut. NORMAN G. WILLIAMS, Franklin.
To Fort Oglethorpe for instruction, Lieuts. WILLIAM D. ROGERS, Warrentown; GEORGE E. BOWDOIN, Wilmington; from Sheffield, Ala., Lieut. JOHN M. EARNHARDT, Rockwell.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Lee*, Petersburg, Va., base hospital, from Camp Greene, Lieut. HENRY W. TIDMARSH, Randleman.

North Dakota

To Camp Meade, Admiral, Md., base hospital, from Fort Oglethorpe, Lieut. ALEXANDER B. MACNAB, Beach.
To Fort Oglethorpe for duty, from New York, Lieut. CHARLES R. TOMPKINS, Oberon.

Ohio

To Camp Colt, Gettysburg, Pa., for duty, from Camp Laurel, Lieut. FRANCIS E. REED, Wren.
To Camp Crane, Alentown, Pa., base hospital, from Camp Pike, Major NORMAN P. McGAY, Cleveland.
To Camp Devens, Ayer, Mass., base hospital, Lieut. ALONZO B. BROWER, Dayton.
To Camp Dix, Wrightstown, N. J., base hospital, Capt. DANIEL C. HOUSER, Urbana; Lieut. MARCUS E. WILSON, Cincinnati.
To Camp Dodge, Des Moines, Ia., for duty, from Camp Perry, Lieut. GEORGE W. MANNING, Kelley's Island; from Fort Benjamin Harrison, Lieut. JOHN A. GRAFFT, Hamilton; from Fort Sheridan, Capt. JOSEPH S. RARDIN, Portsmouth.
To Camp Hancock, Augusta, Ga., base hospital, Lieut. HOWARD BENUS, Cincinnati.
To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Army Medical School, Lieut. CLARKE C. PATTON, Ashland.
To Camp Las Casas, San Juan, P. R., for duty, from Camp Lee, Lieut. ROBERT A. THORNTON, Columbus.
To Camp Lee, Petersburg, Va., for duty, Lieut. GEORGE B. TOPMOELLER, Clifton; from Fort Oglethorpe, Lieuts. FRANK L. SALISBURY, Dayton; BURT A. MARQUARD, Dover.
To Camp McClellan, Anniston, Ala., base hospital, from Camp Wadsworth, Capt. SYLVESTER J. GOODMAN, Columbus; Lieut. GEORGE A. HAVEMANN, New Bremen.
To Camp Meade, Admiral, Md., base hospital, from Camp Lee, Lieut. CLYDE B. TERWILLEGAR, Milford.
To Camp Pike, Little Rock, Ark., for duty, from Fort Sheridan, Capts. DELPHUS B. VIRTUE, Iberia; JAMES A. McGREW, New Athens; from Fort Wayne, Capt. LEROY B. HUMPHREY, Akron; Lieut. FRANK B. GREGG, Wellington.
To Camp Sevier, Greenville, S. C., for duty, from Fort Oglethorpe, Major CHARLES H. MacFARLAND, Cleveland.
To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. WILLIAM J. GRAF, Cincinnati. For duty, from Eastern Department, Lieut. HENRY B. RAMAN, Cincinnati.
To Fort Oglethorpe for duty, from New York, Capt. JOHN D. OSMOND, Cleveland. For instruction, Capts. WALTER C. CROUCH, Cleveland; EDWARD L. LEONARD, Fulton; HARRY W. BLAIR, Mount Vernon; Lieuts. RUSSELL B. CRAWFORD, Ashland; EDMOND C. KONRAD, Cleveland; EDWARD R. WERNER, Dayton; ROBERT W. NOSKER, Orient; WILLIAM F. DEMUTH, Port Washington; JOSEPH H. RHINEHART, Springfield; EARL R. MELLETT, JOSEPH J. SWEENEY, Toledo; JOHN K. HAMILTON, Youngstown.
To New Haven, Conn., Yale Army Laboratory School, for instruction in bacteriology, Lieut. VICTOR B. HALBERT, Sylvania.
To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, Capt. CHARLES DeC. HOY, Columbus. Neurological Institute, for instruction, Capt. FERN J. BIDWELL, Toledo.
To Syracuse, N. Y., for duty, Capt. HALBERT B. BLAKEY, Columbus.

Oklahoma

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Lieut. ALONZO P. GEARHART, Blackwell.
To Camp Fremont, Palo Alto, Calif., base hospital, Capt. JOHN S. PINE, Oklahoma City.
To Camp MacArthur, Waco, Texas, base hospital, Lieut. CHARLES N. BERRY, Norman.
To Camp McClellan, Anniston, Ala., base hospital, from Fort Logan H. Roots, Lieut. JOEL S. HOOPER, Tulsa.
To Camp Travis, Fort Sam Houston, Texas, for duty, Capt. CURTIS R. DAY, Oklahoma City; Lieut. JOHN I. DERR, Waurika.
To Canal Zone for duty, Lieut. CLARENCE H. FIELD, Oklahoma City.
To Fort Oglethorpe for instruction, Capt. BENTON LOVELADY, Guthrie; Lieut. HENRY BLENDER, Okeene.
To Fort Riley for instruction, Lieuts. EMORY W. KING, Bristow; CHARLES E. PARKER, Dustin; WILLIAM L. HALL, Freedom; ELLIS JONES, Kiefer; EMMETT JOHNSON, Kinta; JOHN C. BREEDLOVE, Muldrow; BEDFORD W. RUSSELL, Strong City; RALPH R. GREEN, Tulsa; ORA O. DAWSON, Wayne; LEWIS A. STUCK, Yale.
To Fort Snelling, Minn., as orthopedic surgeon, from Camp Grant, Capt. FENTON M. SANGER, Oklahoma City.
To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. ARTHUR F. HOBBS, Hinton.
To Hot Springs, Ark., for observation and treatment, from Fort Riley, Lieut. WILLIAM A. L. COSSEY, Prague.
To Metuchen, N. J., for duty, from Fort Oglethorpe, Lieut. WILL C. WAIT, McAlester.
To Mount Clemens, Mich., Signal Corps Aviation School, for duty, from Camp Kelly, Lieut. TAZWELL D. ROWLAND, Shawnee.
To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Lieut. HENRY T. BALLATINO, Muskogee.
To Rockefeller Institute for instruction in bacteriology and on completion *to Army Medical School* for duty, Lieut. ORVILLE J. WALKER, Oklahoma City.
Honorably discharged, Lieut. WOODWARD R. MITCHELL, Verden.
Resignation of Capt. GUY B. VAN SANDT, Wewoka, accepted.

Oregon

To Fort Oglethorpe for instruction, from Fort Riley, Lieut. OREL A. WELSH, Oregon City.
To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort Leavenworth, Lieut. FRANK R. MENNE, Portland.

Pennsylvania

To Camp Beauregard, Alexandria, La., base hospital, Lieut. HARRY C. WINSLOW, Meadville.
To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Lieuts. GEORGE M. PURVEE, ARTHUR R. WOODS, Philadelphia.
To Camp Dix, Wrightstown, N. J., base hospital, Capts. CHARLES A. STILLWAGEN, GEORGE W. STIMSON, Pittsburgh; Lieuts. LELAND C. RUMMAGE, Sweet Valley; LEWIS S. DUNN, Chester. For duty, from Fort Oglethorpe, Capt. LU VAN LEER BROWN, Castle Shannon.
To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. AUSTIN F. KLUTZ, Philadelphia.
To Camp Grant, Rockford, Ill., base hospital, from Camp Lee, Major LAWRENCE LITCHFIELD, Pittsburgh.
To Camp Jackson, Columbia, S. C., base hospital, from Army Medical School, Lieut. GUY S. VOGAN, Pittsburgh.
To Camp Lee, Petersburg, Va., for duty, Lieut. ROGER S. PARRY, Washington.
To Camp Meade, Admiral, Md., base hospital, Capt. SAMUEL A. RULON, Jr., Phoenixville.
To Camp Sevier, Greenville, S. C., base hospital, from Camp Custer, Lieut. JOHN L. LAVIN, Swoyersville.
To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieut. JAMES R. MORROW, Mount Vernon.
To Camp Upton, L. I., N. Y., for duty, Lieut. JOSEPH F. COMERFORD, Plymouth, from Bristol, Lieut. HAROLD A. GHERING, Edinboro; from Camp Holabird Colgate, Lieut. HOWARD S. BUSLER, Philadelphia.
To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Dodge, Capt. JAMES W. BODLEY, Philadelphia. For duty, from Fort Oglethorpe, Capt. ROY E. SLEEPY, Library.
To Camp Wheeler, Macon, Ga., base hospital, Capt. HARRY B. PATTERSON, Pittsburgh.
To Canal Zone for duty, from Lakewood, Lieut. DAVID S. GRIM, Reading.
To Elizabeth, N. J., for duty, from West Point, Miss., Capt. RAY N. LEWIS, Apollo.
To Fort Benjamin Harrison, base hospital, from New York, Lieut. CHARLES K. SHANOR, Sewickley.
To Fort McHenry, Md., for temporary duty, from Camp Meade, Capt. GEORGE H. CROSS, Chester.
To Fort Oglethorpe for duty, from New York, Capt. JAMES WARD, Lucermines; Lieut. CHARLES A. FITZGERALD, Clarion. For instruction, Capts. GEORGE M. BOYD, HAROLD M. WHITEWAY, Philadelphia; WILLIAM H. GLYNN, Pittsburgh; Lieuts. FRANK L. MORROW, Braddock; ESTEN L. HAZLETT, Canonsburg; ELIJAH M. ELSWORTH, Dorranceton; WILIAM E. KRIESS, Evans City; WILLIAM S. BRYSON, Hopewell Township; GEORGE S. HENSYL, Mahoney City; THOMAS B. HERRON, Monesson; CHARLES SCHABINGER, Philadelphia; HARRY NEVINS, Pittsburgh; EVANS M. FREE, Stewartstown; EDWARD B. COOPER, Sunbury; HARRY L. BAER, Sutersville; GEORGE H. GRIFFIN, Uniontown.
To Hoboken, N. J., base hospital, from Camp Crane, Lieuts. HARRY F. GARMAN, Barnesboro; ROBERT HAMILTON, Smethport.
To Metuchen, N. J., with the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. WILLIAM D. STROUD, Philadelphia.
To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Fort Sill, Major ROBERT S. McCOMBS, Capt. JOHN P. GALLAGHER, Philadelphia.
To Morrison, Va., for duty, from Fort Oglethorpe, Lieuts. LOUIS MACKLER, Philadelphia; PAUL G. ATKINSON, Pittsburgh.
To New Haven, Conn., for duty, Capts. JONATHAN C. FOLTZ, Philadelphia; CLARENCE M. MALONE, Shamokin. For instruction, from Fort Leavenworth, Lieuts. OMER R. ETTER, Philadelphia; NORBERT D. GANNON, Pittsburgh. *To Yale Laboratory School*, for instruction in bacteriology, Lieut. WILLIAM M. DANIELS, Lancaster.
To Newport News, Va., for duty, from Fort Sam Houston, Lieut. ERNEST J. ATEN, Pittsburgh.
To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, Capt. SAMUEL W. MILLER, Lancaster. On completion *to Camp Jackson*, Columbia, S. C., base hospital, Lieut. FRANCIS J. CONAHON, Morea.
To Orangeburg, S. C., to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, Lieut. SAMUEL W. REEVES, Fawn Grove.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Walter Reed General Hospital*, Takoma Park, D. C., for duty, Lieut. WILLIAM B. SWARTLEY, Philadelphia.
To Syracuse, N. Y., for duty, Lieut. CHARLES C. SPANGLER, York; from Camp Jackson, Lieut. EDWARD I. WOLFE, Jr., Kingston.
To Walter Reed General Hospital, Takoma Park, D. C., for duty, from Camp A. A. Humphreys, Lieut. EDGAR B. SLOTERBECK, Monessen.
To Washington, D. C., St. Elizabeth's Hospital, for training, from Fort Oglethorpe, Capt. GEORGE W. SMELTZ, Markleton; from Fort Thomas, Lieut. HORACE L. CORNCROSS, Philadelphia.
To Williamsburg, N. Y., for duty, Lieut. LEROY W. FREDERICK, Philadelphia; from Camp Sheridan, Lieut. JOHN C. TABLE, Freeland.

Porto Rico

To Camp Las Casas, San Juan, P. R., base hospital, Lieut. HILARIO CASO, Santurce. For duty, Lieuts. RAMON B. BERDECIA, Barranquitas; MANUEL L. DEL VALLE, Humacao.

Rhode Island

To Camp Dix, Wrightstown, N. J., base hospital, from Rockefeller Institute, Capt. HERMAN C. PITTS, Providence.

South Carolina

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. ROBERT C. BROWN, Lancaster. For duty, from Eastern Department, Lieut. WARREN H. BURGESS, Sumter.

To Fort Oglethorpe for instruction, Lieut. JOHN K. WICKER, Newberry.

To Fort Sill, Okla., base hospital, from Fort Sam Houston, Major CHARLES O'H. LAUGHINGHOUSE, Greenville.

To New York City, Neurological Institute, for instruction, Capt. BAXTER S. MOORE, Chester.

South Dakota

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Lieut. ROBERT A. CRAWFORD, Chamberlain.

To Fort Oglethorpe for instruction, Capts. JACOB G. CHICHESTER, Redfield; JOHN F. McKIE, Wessington.

To Fort Riley for instruction, Capt. EDWARD L. PERKINS, Sioux Falls.

The following order has been revoked: *To Fort Sill, Okla.*, base hospital, Capt. BYRON A. BOBB, Mitchell.

Tennessee

To Camp Cody, Deming, N. M., for duty, from Fort Sam Houston, Lieut. GREEN W. McCONATHY, Eads.

To Camp Sevier, Greenville, S. C., for duty, from Camp Beauregard, Capt. EDWARD D. NEWELL, Chattanooga.

To Camp Upton, L. I., N. Y., for duty, from Camp Meigs, Lieut. WILLIAM V. PRUETT, Brownsville.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Eastern Department, Capt. JAMES C. FLY, Lyles.

To Fort Oglethorpe for instruction, Lieuts. CHARLES C. CARR, Cumberland Gap; JACOB H. IDOL, Tate.

To Hoboken, N. J., base hospital, from Camp Crane, Capt. CHARLES P. EDWARDS, Kingsport.

To New Haven, Conn., for duty, Lieut. WILLIAM O. BAIRD, Memphis.

Texas

To Camp Cody, Deming, N. M., for duty, from Douglas, Lieut. ARCHER B. WORSHAM, Brashear; from Fort Sam Houston, Capt. WILLIAM H. HARGIS, San Antonio.

To Camp Fremont, Palo Alto, Calif., Lieut. THOMAS J. CAGLE, Crosbyton.

To Camp Lee, Petersburg, Va., base hospital, Lieut. ANDREW M. HUFFMAN, Polytechnic.

To Camp Logan, Houston, Texas, base hospital, Capt. CHARLES W. TAYLOR, San Antonio; Lieuts. WALTER D. BROWN, Beaumont; JESSE L. MITCHELL, San Antonio.

To Camp MacArthur, Waco, Texas, base hospital, Capt. WILLIAM S. PEDIGO, Strawn; Lieut. OSCAR S. McMULLEN, Victoria. For duty, Capt. MURFF F. BLEDSOE, Port Arthur; Lieut. GEORGE D. PARKER, Houston; from Camp Travis, Lieut. WILLIAM F. SPILLER, Galveston.

To Camp Meade, Admiral, Md., base hospital, Capt. LESTER C. G. BUCHANAN, Big Springs; from Camp Lee, Lieut. JOHN C. THOMAS, Taylor.

To Camp Travis, Fort Sam Houston, Texas, for duty, Capt. JAMES C. CHEATHAM, Wolfe City.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Bowie, Lieut. FRANK G. SANDERS, Fort Worth. For duty, from Camp A. A. Humphreys, Lieut. OLIVER H. TIMMINS, San Antonio.

To Dayton, Ohio, for duty, from Camp Kelly, Capt. D. LEON SANDERS, Wells Point.

To Fort Oglethorpe for instruction, Lieut. ROBERT W. BOUNDS, Shalowater.

To Fort Riley for instruction, Capts. CLAUDE P. JONES, Bay City; WILL P. ROGERS, El Paso; CHARLES W. GRIFFITH, La Porte; CYLDE H. CRAWFORD, Pidcoke; Lieuts. SAMUEL A. WOOLSEY, Austin; RUBEN F. MARTIN, JAMES M. MILLER, San Antonio.

To Fort Worth, Texas, for duty, from Leon Springs, Lieut. JOHN B. BAUGUSS, White Wright.

To Mineola, L. I., N. Y., for duty, from San Antonio, Capt. WILSON M. BASSETT, San Antonio. *To Signal Corps Aviation School*, for duty, from Montgomery, Capt. ROBERT A. TRUMBULL, Dallas.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort Leavenworth, Lieut. GEORGE C. KINDLEY, Dallas.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. EARLE ACKER, Pasadena.

To Syracuse, N. Y., for duty, from Camp Meade, Capt. EDWIN B. KENNER, Galveston.

To Waynesville, N. C., for duty, from Camp Travis, Lieut. CARROL L. MOORE, Houston.

Utah

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Fort Douglas, Capt. HARRY N. MAYO, Salt Lake City.

To Mineola, L. I., N. Y., for duty, from Dallas, Capt. ROBERT R. HAMPTON, Salt Lake City.

Vermont

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. JOHN W. STEWART, Barre.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Eastern Department, Lieut. PATRICK J. McKENZIE, Burlington.

To Fort Oglethorpe for instruction, Capts. THOMAS S. BROWN, Burlington; JOHN P. GIFFORD, Randolph; Lieuts. WILLIAM H. HURLEY, Northfield; GEORGE B. HUNTER, West Battleboro.

Virginia

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp MacArthur, Lieut. JAMES A. MERIWETHER, Holcombs Rock.

To Fort Oglethorpe for instruction, Capts. LAWRENCE E. FLANNAGAN, Charlottesville; ASA W. GRAVES, Lacey Spring; Lieut. RUSSELL J. SHULL, Winchester.

To Otisville, N. Y., for duty, from New Haven, Lieut. JAMES J. BARFIELD, Catawba Sanatorium.

To Washington, D. C., Howard University, for duty, from Fort Oglethorpe, Lieut. BURL BASSETTE, Hampton.

Washington

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. JOSIAH S. DAVIES, Tacoma.

To Fort Riley for instruction, Capt. CHARLES S. HOOD, Ferndale; Lieut. CARL G. RAHAL, Roslyn.

To Mineola, L. I., N. Y., for duty, from San Diego, Capt. RICHARD W. PERRY, Seattle.

To Syracuse, N. Y., for duty, Capt. JOHN A. ALLEN, Medical Lake.

West Virginia

To Camp Bowie, Fort Worth, Texas, base hospital, from Rockefeller Institute, Lieut. FRANK C. HODGES, Huntington.

To Camp Lee, Petersburg, Va., base hospital, Lieut. HARRY E. WHALEY, Hansford.

To Fort Oglethorpe for instruction, Capts. MARTIN V. B. GODBEY, Charleston; JAMES W. McDONALD, Fairmont; EUGENE B. WRIGHT, Richmond; Lieut. OLIVER H. GRIFFITH, Parkersburg.

To Syracuse, N. Y., for duty, from Camp Gordon, Lieut. CHARLES P. S. FORD, Hansford.

The following order has been revoked: *To Camp Beauregard*, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. JOHN E. MILLER, Widen.

Wisconsin

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Leavenworth, Capt. JOHN R. EASTMAN, Kenosha.

To Camp Grant, Rockford, Ill., base hospital, Capt. ALFRED W. GRAY, Milwaukee; Lieut. JOHN C. ZUERCHER, La Crosse.

To Camp MacArthur, Waco, Texas, base hospital, from Fort Oglethorpe, Capt. GENTZ PERRY, Amery.

To Camp Meade, Admiral, Md., base hospital, from Camp Crane, Lieut. CHARLES B. RYDELL, Superior.

To Camp Pike, Little Rock, Ark., for duty, from Fort Sheridan, Capt. CHARLES E. LAUNDER, Viroqua.

To Fort Des Moines, Iowa, base hospital, from New York, Lieut. EARLE F. McGRATH, Appleton.

To Fort Oglethorpe for instruction, Capts. VICTOR F. MARSHALL, Appleton; HERBERT A. ROBINSON, Kenosha; WILLIAM S. DARLING; Lieuts. WALTER G. DARLING, GEORGE F. KENNEY, STANLEY J. SEEGER, Milwaukee.

To Fort Riley for instruction, Capt. FRANK W. McKEE, Richland Center; Lieuts. JOSEPH A. KEITHLEY, Palmyra; SAMUEL C. McCORKLE, West Alis.

To Fort Worth, Texas, for duty, from Fort Sill, Capt. RICHARD S. WILSON, Milwaukee.

To New Haven, Conn., for duty, Capt. LEWIS W. DUDLEY, Milwaukee.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. BEVERLY M. HALL, Milwaukee.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Kearney, Major JOHN R. McDILL, Milwaukee.

Wyoming

To Fort Oglethorpe for instruction, Capt. WILLIAM A. STEFFEN, Sheridan.

To Fort Riley for instruction, Lieut. CHESTER A. CONYERS, Buffalo.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Campaign Against Venereal Disease.—W. C. Blasingame, a member of the faculty of the Alabama Polytechnic Institute, Auburn, has been employed by the state board of health as field representative to the state campaign for the prevention and control of venereal diseases. He will enlist the aid of teachers, speakers and the general public, and will point out the dangers in both civil and military life of these diseases.

Personal.—Dr. William W. Dinsmore, state prison inspector, Montgomery, announces his resignation to take effect September 1, in order to become assistant medical director of the Traveler's Insurance Company, Hartford, Conn.——Dr. Glenn Andrews, Montgomery, who has been a member of the state board of health, has been recommended by the governor as state prison inspector.——Dr. Harry C. Crelly, formerly pest house physician for Birmingham, has been appointed municipal surgeon.

Divorce of Local from State Health System Voted Down.—At the meeting of the Jefferson County Medical Society at Birmingham, July 8, a resolution was introduced by Dr. Edward P. Riggs, Birmingham, proposing a complete divorce of the official health connection between the state and local governments and the state and county medical societies. This plan was referred to the board of censors, who reported to the society, July 15, recommending that the present system of electing the state and county health officers by the state and county societies be maintained. The report was adopted by practically a unanimous vote.

DISTRICT OF COLUMBIA

Personal.—Dr. William C. Fowler assumed office as health officer of the District, August 1, succeeding Dr. William C. Woodward, who resigned to accept the position of commis-

sioner of health of Boston.——The Georgetown University Medical School announces the following faculty changes: Dr. Clarence R. Dufour, who resigned as clinical professor of diseases of eye and ear has been appointed emeritus professor in these specialties; Dr. Isaac S. Stone, professor of gynecology, who resigned after twenty-six years of service, has been succeeded by Dr. J. Thomas Kelly, and Drs. James M. Moser and John A. Foote have been appointed assistant professors of pediatrics.

GEORGIA

Reporting of Contagious and Infectious Diseases.—The legislature of Georgia passed a law authorizing a state board of health in 1903, and this law contains a section providing, "That it shall be the duty of the local boards of health, and of physicians in localities where there are no health authorities, to report to the state board of health promptly on the discovery thereof the existence of any of the following diseases, to wit: Asiatic cholera, yellow fever, scarlet fever, smallpox, diphtheria, typhus or typhoid fever, and of such other contagious or infectious diseases as the state board of health from time to time may specify." Several diseases have since been added and the following is a complete list: actinomycosis, acute infectious conjunctivitis, ankylostomiasis (hookworm), anthrax, cerebrospinal meningitis, chickenpox, cholera, dengue, diphtheria, dysentery (amebic), dysentery (bacillary), favus, german measles, glanders, gonorrhea, leprosy, malaria, measles, mumps, yellow fever, paratyphoid fever, plague, pneumonia (acute lobar), poliomyelitis, rabies, Rocky Mountain spotted or tick fever, scarlet fever, septic sore throat, smallpox, syphilis, tetanus, trachoma, trichinosis, tuberculosis (pulmonary), tuberculosis (other than pulmonary), typhoid fever, typhus fever and whooping cough. Since the beginning of this year the state board of health has been making a serious effort to have this part of the law enforced. The secretary of the board has recently sent out return postcards to every physician in Georgia, on which reports are being made. Dr. Thomas F. Abercrombie, Atlanta, secretary of the board, has been appointed collaborating epidemiologist of the United States Public Health Service. The board is also cooperating with the United States Public Health Service, by establishing free clinics for venereal diseases in each congressional district and by investigation of epidemics in the state by Dr. Josephus J. P. Bowdoin, Adairsville, epidemiologist for the board, and acting assistant surgeon, U. S. P. H. S. The legislature has manifested marked interest in the work of the board and gives promise of more liberal financial assistance.

ILLINOIS

Typhoid Fever.—The typhoid fever epidemic in Moline is unabated and fourteen new cases, making 109 in all, have been reported with two deaths.——An epidemic of typhoid fever in Danville is declared by the state board of health to have been traced to two sources of milk supply of the city.

Illegal Practitioners Prosecuted.—The Department of Registration and Education of Illinois has secured a conviction against F. Zegsda in the Municipal Court of Chicago, and suit was filed against Jeb Maddox, East St. Louis, for practicing medicine without a license. Zegsda was fined $100 and costs.

Farewell Dinner to Reserve Corps Men.—The association of Misercord of the Heber Memorial Hospital, Pana, gave a dinner at the hospital, July 25, in honor of the physicians who have been called into United States Service. The guests of honor were Drs. Roscoe C. Danford, Walter Burgess, and Frederick J. Eberspacher. Dr. John F. H. Deal, Springfield, was toastmaster.

License Suspended.—The Department of Registration and Education of Illinois has suspended the license of Dr. H. E. Ronalds, Mattoon, until the cases now pending against him for performing criminal abortions are finally adjudicated by the courts. On the finding of the court in these cases will depend the future action of the department in the matter of the revocation of the license of Dr. Ronalds.

Chicago

Child Welfare Department Moves.—The work of the Child Welfare Department of the Women's Committee, Council of National Defense, Illinois Division and that of the Elizabeth McCormick Memorial Fund have been transferred to the fifth floor of the Tower Building, 6 North Michigan Avenue.

Correction.—The notice which appeared recently in the daily press, that Dr. William M. Harsha had been appointed superintendent of the Municipal Tuberculosis Sanitarium, was incorrect. Dr. Harsha has been appointed a member of the board of medical directors of the Municipal Tuberculosis Sanitarium of Chicago.

INDIANA

Venereal Campaign in Fort Wayne.—An active campaign against venereal diseases was opened in Fort Wayne, July 30, by Dr. John N. Hurty, state health commissioner, Senior Surgeon Julius O. Cobb, U. S. P. H. S., Acting Assistant Surgeon Edward C. Helwig, U. S. P. H. S., and Captain William F. King, M. C., Ind. N. G.

KENTUCKY

Venereal Disease Regulation.—Under Chapter 63 of the Kentucky Statutes the state board of health is empowered to formulate and enforce rules for the control of infectious and contagious diseases. The common council of Louisville, March 28, passed an ordinance including venereal diseases in this classification. A woman was arrested for soliciting soldiers on the street, and confined to jail. On motion before the court for her release, arguments were heard to test the validity of the ordinance, and Judge Lincoln decided that the rules and regulations were within the legislative power, that they were properly adopted and promulgated and that the detention of the prisoner for a reasonable length of time is lawful. It is now possible, under this ordinance, to confine in the county jail all prostitutes and other persons suffering from venereal disease in an infective state, until they can be treated.

MARYLAND

Johns Hopkins Unit Overseas.—The Johns Hopkins Unit, which was in training at Allentown, Pa., for several months and which left some time ago for overseas, has arrived in Italy after remaining a short time in France.

More Wards at Fort McHenry.—A new group of hospital buildings connected by a series of corridors is under construction at U. S. A. General Hospital No. 2. Quarters are now prepared for 1,000 patients, and when the horseshoe of buildings is finished there will be accommodations for 2,500.

Johns Hopkins Faculty Member Dies.—E. W. Sanford, Ph.D., Yale University, New Haven, Conn., 1917, assistant in anatomy, zoology, embryology, and entomology in Johns Hopkins University Medical School, aged 25, died at his home in Centerville, Conn., July 23, from septicemia, caused by accidentally inoculating himself in the course of his experiments.

Personal.—Col. John M. T. Finney, chief surgical consultant of the American Expeditionary Forces, has recently arrived in Baltimore, bound for Washington on an important secret mission connected with his work overseas. The length of Colonel Finney's stay in this country is as yet undetermined, but it is probable that he will return to France as soon as he has completed his mission at Washington.

Improvements at Quarantine.—Plans for extensive improvements at Quarantine are under consideration by the United States Public Health Service. They include a modern hospital building and a fumigating plant, which the health department of Baltimore recommended several years ago. The landing may be overhauled and better facilities provided for the boarding and inspection of vessels. It is understood that the city will continue to lease the station to the government until Congress makes an appropriation covering the purchase price of $175,000.

MICHIGAN

Personal.—Dr. Lafon Jones, formerly of Sebewaing, began work as full-time city physician of Flint, July 22.——Dr. Vinton J. Rickerd, Charlotte, is reported to be seriously ill with septicemia as the result of a pin prick.

Violators of Medical Laws.—The Michigan State Board of Registration in Medicine has recently taken action in regard to violators of the medical practice laws as follows:

Dr. Walter Moffat, Grand Rapids, was convicted in the Superior Court, Grand Rapids, Michigan, May 23, 1917, under the provisions of Section 3, subdivision 6, clause (a), of Act. No. 368 of the Public Acts of Michigan, 1913, "The procuring, aiding or abetting in procuring a criminal abortion." License No. 3909, dated March 22, 1900, cancelled by Michigan State Board of Registration, Jan. 23, 1918. Subsequent to cancellation of license, Dr. Moffat was arrested for practicing without a license, given a suspended sentence, and he left Michigan for the west.

"Professor" Winney, Grand Rapids, was arrested May, 1917, for practicing medicine without a license, pleaded guilty and was given a suspended sentence.

Dr. William Gayle French, Detroit.—Two warrants issued against him, one for immoral advertising and the other for obtaining money under false pretenses. Warrants were not served owing to the fact that he left for parts unknown before service could be effected.

Dr. Irving E. Sanders, 65 West Fort St., Detroit, was convicted in the Circuit Court for the County of Lenawee, Jan. 8, 1917, on the charge of grossly unprofessional conduct, he having been habitually addicted to the use of narcotic drugs. His license No. 3146, dated March 22, 1900, was revoked by the Michigan State Board of Registration in Medicine, July 20, 1918.

MINNESOTA

Training School Established.—The Sisters of St. Joseph's Hospital, Brainerd, have established a nurses' training school to be affiliated with St. Mary's Hospital, Duluth.

State Society to Meet.—The annual meeting of the Minnesota State Medical Association will be held in Duluth, August 28 to 30. One of the features of the three-day meeting will be a tribute to the men of the society who are in the military service.

NEW YORK

Two New York Towns Publish Milk Reports.—Nyack and South Nyack have a plan whereby monthly bacteriologic reports on the milk supply are published in the local papers, and supplemented by suggestions to householders on the care of milk after it has reached the home.

Personal.—Dr. Elliot I. Dorn, who has been resident physician and roentgenologist at the New York City Municipal Sanatorium at Otisville, has been appointed superintendent of the Pleasant Valley Sanitorium, the new Steuben County tuberculosis hospital.

Montgomery Preventorium Open.—The preventorium on the grounds of the Montgomery County Sanatorium was opened early in July and will remain open for about two months. It accommodates about forty children. Plans are being worked out to make this a permanent part of the activities of this institution.

Bacillary Dysentery in Poughkeepsie.—A few cases of bacillary dysentery are again reported in Poughkeepsie, where the disease has been epidemic for the past two summers. In each instance it has been found that the patient is a member of a family in which the disease appeared last summer. Two persons who were ill with the disease last year have been found to be carriers.

New York State Association of Public Health Laboratories Elects New Officers.—This organization has elected the following officers for the coming year: president, Dr. Warren B. Stone, Schenectady; vice-president, Dr. Joseph S. Lawrence, Albany, and secretary and treasurer, Dr. Howard I. Davenport, Auburn. This organization has decided to meet henceforth in conjunction with the state medical society.

Lake George Health District.—By an act of the legislature the shores of Lake George have been converted into one health district which is to be in charge of one full-time health officer at an adequate salary. Hitherto it has been possible for one municipality in this district to nullify to a large extent any attempt to improve sanitary conditions on the part of its neighbors. The new plan will insure sanitary control of the entire lake shore which will greatly add to the value of this locality as a health resort. It is believed that the results obtained in this district will justify the creation of similar districts elsewhere in the state. Dr. Minna M. Rohn, Cleveland, has been appointed sanitary supervisor of the new district.

Addition to Fox Hills War Hospital.—An additional forty-bed ward has recently been added to the big Clearing Hospital at Fox Hills, Staten Island, known as General Hospital No. 10. This structure was completed within ten hours and thirty-eight minutes from the time of starting work, though at that time the post holes were not dug and the lumber was not cut to size. The new pavilion is 156 feet long, 24 feet wide and has a porch along the entire length on one side. More than 1,000 men were employed during the day and the building was complete by night, including the lighting, water system and heating system, and even the fire extinguishers were hung in place. The construction division of the Army is prepared for similar work in all camps and cantonments, should the necessity for increased hospital facilities arise.

Venereal Diseases Bureau Established.—On July 1 a Bureau of Venereal Diseases was established in the New York State Department of Health in accordance with the provisions of a new law (Chap. 342) passed by the Legislature of 1918. By this law the Bureau is authorized to buy, manufacture and dispense remedies for the treatment of venereal diseases, to examine specimens submitted to it, to make all necessary tests, to provide and distribute literature on the suppression and cure of these diseases and to use such other means as seem desirable for the instruction of the public. The personnel of the bureau consists of a chief, a consultant, an organizer and inspector of clinics, and dispensaries, a lecturer on social diseases, and a public health nurse. The first duty and service of all these officers is recognized to be educational. Their special duties are suggested in their titles. The plan is first to arouse public interest in these diseases, their modes of spreading, their effects on the individuals and on the community and finally in methods for their control and suppression. For this purpose each member of the Bureau is available either for organization work or public addresses. For mother's clubs, Y. W. C. A. and other female organizations the public health nurse may be used. A set of lantern slides has been prepared to help make these addresses more interesting. The second step will be to assist in the establishment of clinics and dispensaries for the treatment of indigent cases. On methods of treatment the consultant will be glad to advise with the proper authorities at any time. On the cost and type of dispensary to establish, the organizer of dispensaries will be able to furnish valuable suggestions from his personal experience. The follow up methods that will be necessary can be organized by the public health nurse. The third step will be to furnish arsphenamin (salvarsan) for treatment of indigent cases. There is a small appropriation which will become available later for this purpose. The State Laboratory is doing experimental work on this substance and hopes soon to be able to furnish it as needed. The necessary steps will be taken at once to put the new act in force. In addition a number of amendments to the Sanitary Code relating to venereal diseases go into effect August 1. Later the entire state will be divided into sections and each section made a unit for carrying on the work.

New York City

Hospital Changes Name.—The German Hospital of Manhattan has changed its name to the Lenox Hill Hospital.

New Members of Regents Board.—Drs. Franklin W. Barrows and William G. Bissell, both of Buffalo, were named as members of the New York State Board of Regents, July 22, and Dr. Jay G. Roberts was appointed a member of the board of dental examiners.

Society to Continue to Operate Hospital.—The Wyoming County Medical Society at its monthly meeting held at Fairview, Silver Lake, July 18, decided to continue to operate the Warsaw Hospital. Dr. Ross W. Thompson, resident physician of the hospital, has entered the military service.

Outings for Sick Soldiers and Sailors.—Dr. John A. Harriss, Deputy Police Commissioner of New York City, has placed his large steam yacht at the disposal of the Mayor's Committee on National Defense to be used in giving convalescent soldiers and sailors in the city hospitals day outings on the waters in the vicinity of the city. The yacht made its first trip July 30.

Cause of Epidemic Discovered.—Surg. John W. Kerr, U. S. P. H. S., and Drs. William B. May, Albany; Bruno L. Schuster, Albany, and Henry R. Lawrence, Atlantic City, N. J., of the state medical department, who have been investigating an epidemic among the employees of the Elba Canning Factory, have concluded that two diseases coexisted, the one typhoid fever and the other an intestinal infection. Practically all these patients have now recovered.

Training Nurses' Aids.—The heads of several hospitals in this city have on their own initiative begun training nurses' aids in the belief that, though the plans of the Army Medical Staff do not call for such aids, the absolute necessity for them will become greater and greater as more American troops are engaged in fighting. Hospital aids may be trained in six months and are then capable of doing 60 per cent. of the work trained nurses have been doing. Dr. Sigmund Goldwater, in advocating this plan, says that hospital aids have been the salvation of the British hospital service.

NORTH CAROLINA

Sanatorium Doubled in Capacity.—It is reported that the War Department has decided to double the size and capacity of its tuberculosis sanatorium at Azelea, near Asheville.

Personal.—Dr. Lewis B. McBrayer, Sanatorium, has been appointed secretary of the Medical Society of the State of North Carolina to succeed Dr. Benjamin K. Hays, who has resigned to enter the military service.——Dr. William Thomas Rainey, Badin, was seriously injured in an automobile accident last month.

District Society Meeting.—The semiannual meeting of the Eighth District Medical Society was held at North Wilkesboro under the presidency of Dr. William P. Horton, North Wilkesboro. Dr. John A. Williams, Greensboro, was elected president, and Dr. William M. Jones, Greensboro, secretary. Greensboro was selected as the next place of meeting.

License Revoked.—It is announced that the license permitting Dr. Joseph W. Summers, Charlotte, to practice in the state was rescinded permanently by the state board at its session in Raleigh, July 10. Dr. Summers was convicted of manslaughter for malpractice on a young woman about two years ago, but later was pardoned by the governor who barred him from practicing medicine for three years.

PENNSYLVANIA

New State Dispensaries Open.—Five additional state dispensaries were opened last week at York, Lancaster, Williamsport, Wilkes-Barre and Altoona, for the treatment of venereal diseases. The dispensaries are in connection with the state tuberculosis service and the clinics are held in the same buildings.

Lehigh Valley Physicians Meet.—At the semiannual meeting of the Lehigh Valley Medical Society, held at Kittaning House, Delaware Water Gap, July 25, the principal address was delivered by Dr. Ernest LaPlace, Philadelphia, on "Focal Infections." The following officers were elected: president, Dr. Noah W. Reichard, Bangor; vice president, Dr. Frederick A. Fetherolf, Allentown; secretary, Dr. William H. Kunsman, Nesquehoning; and treasurer, Dr. David H. Keller, Pen Argyl.

Personal.—Dr. Edward H. Harris, Snow Shoe, is under treatment at the Bellefonte Hospital, on account of crushing injuries of the chest received in an automobile collision a few days ago.——Drs. Simon S. and C. S. Williams Koser, Williamsport, have been selected by the trustees of the Masonic Homes, Elizabethtown, to take charge of the Philadelphia Memorial Hospital on the grounds of the home.——Dr. John W. Bruner, Bloomsburg, was seriously injured in an automobile accident, recently.

Philadelphia

Tablet for War Hero.—A memorial tablet to Capt. Frederick David Clair, M. R. C., U. S. Army, formerly of this city, who was killed in action, May 10, was unveiled at the Jewish Seaside Home for Invalids, Atlantic City, N. J.

Head of Army Nursing School.—Miss C. Milne, head of the training school for nurses at the Presbyterian Hospital for twenty-three years, has been appointed superintendent of the army school of nurses at Camp Dix, in connection with the present campaign for student nurses. Miss Annie Wray, formerly superintendent of the Polyclinic Hospital and instructor of nurses at the Philadelphia General Hospital, has been appointed assistant. The first thirty students already enrolled will be received immediately for a three-year course.

Byberry Farm to Be Federal Hospital.—The Surgeon-General has formally accepted the offer made by the city of Philadelphia of the use of five incomplete buildings, formerly a group of structures intended for the city insane at Byberry, to be used as a government hospital for wounded soldiers and sailors brought from overseas during the war. This will be one of the large general and special reconstruction hospitals being established throughout the country. Soldiers recruited from this locality will be returned to this hospital when convalescing from injuries and disease, as experience has proved that the injured make more speedy recovery when treated in or near their home towns. In connection with the reconstruction work among the injured, a survey is now being made of all the industries in this state, with a view of ascertaining how many crippled soldiers can be employed at gainful occupations.

VIRGINIA

Venereal Clinic.—The United States government has established, in connection with the health department of Richmond, a free clinic for the treatment of venereal disease at the Medical College of Virginia. Dr. Thomas L. Driscoll, Richmond, has been placed in charge of the clinic which is to be open from 5 to 9 p. m.

Personal.—Dr. Thomas W. Edmunds, Danville, has been appointed a member of the state board of health to succeed Dr. Lewis E. Harvie, deceased.——Dr. R. Sumter Griffith has been elected mayor of Basic City.——Dr. Moses D. Hoge, Richmond, has been elected a member of the state school board to succeed Dr. James M. Hutcheson, who has resigned to enter the military service.——Dr. William F. Drewry, Petersburg, who has been seriously ill with septicemia, is reported to be much improved.——Dr. Ennion G. Williams, Richmond, state health commissioner of Virginia, and president of the Medical Society of Virginia, has been appointed assistant surgeon, U. S. N. R. F.——Dr. A. B. Cooke, United States Consul at Patras, Greece, and family have arrived in Norfolk.

CANADA

Hospital News.—The governors of the Mountain Hospital, Hamilton, Ont., have been asked by the military authorities of Canada for further accommodation for twenty returned soldiers. It is likely that the government will finance a new wing for the purpose.——As the result of the appointment of a French-Canadian doctor to the Water Street Hospital, Ottawa, friction has occurred, and one medical member of the staff has resigned. There are two English doctors on the staff of eight, the other six being French-Canadians. Another English doctor was said to be in line for the appointment.

Infant Mortality in Montreal.—Dr. William A. L. Styles, secretary of the Baby Welfare Committee, Montreal, recently demanded that an investigation be held into the causes of Montreal's heavy infant mortality. In reply, Dr. Boucher, the medical officer of health, quotes figures to prove that the death rate in infant mortality is steadily declining in that city. In 1914 there were, from January 1 to July 13, 2,352 deaths of children under five years of age; 1915, 2,425; 1916, 1,883; 1917, 2,231; 1918, 1,820. Of the 241 deaths in Montreal during the week ending July 27, 128 were children under five years of age. Other statistics given are: in 1906 the deaths in infants numbered 271 per 1,000 births; in 1917, 178 per 1,000 births.

Personal.—Lieutenant-Colonel Hardy, in command of the Toronto Military Base Hospital, is mentioned for the command of the new military hospital of 2,200 beds in Rosedale, Toronto.——Lieut.-Col. Harold C. Parsons, Toronto, lately returned from England, is enjoying a holiday with Lieut.-Col. D. J. Gibbs Wishart, at the latter's summer residence, Go-Home Bay, Muskoka.——Capt. Harvey Gordon Young, St. Mary's, Ont., formerly an intern in the Toronto General Hospital, has been mentioned in despatches. He received the Distinguished Service Order several months ago for exceptional galantry.——Capt. Chester C. Richardson, Windsor, Ont., has returned from overseas service.——Major William J. Clark, Toronto, returned from the Ontario Military Hospital, England, is now on the casualty board, Toronto.

GENERAL

Correction.—The report of the death of Passed Asst. Surg. Paul Tonnel Dessez, U. S. Navy, which was announced in THE JOURNAL, July 13, was incorrect, owing to an error in the cablegram announcing the awards of the Distinguished Service Cross for bravery, in which Dr. Dessez was erroneously included in the posthumous list.

Colored Physicians to Meet.—The twentieth annual meeting of the National Medical Association will be held in Richmond, Va., August 27 to 29. The program includes important discussions on medicine, surgery, dentistry and pharmacy. Clinics and demonstrations and scientific sessions will be held at the Virginia Union University. Dr. James H. Blackwell is chairman of the committee of arrangements.

Bequests and Donations.—The following bequests and donations have recently been announced:

Childrens' Homeopathic Hospital and Women's Homeopathic Association of Pennsylvania, Philadelphia, $25,000 by the will of Mrs. Sarah A. C. Lloyd.

Samaritan Hospital, Philadelphia, $2,500, and a continued bequest of $5,000 to the Home of the Merciful Savior for Crippled Children, Philadelphia, and the Hospital for Consumptives, Chestnut Hill, by the will of Mrs. Carra P. Miles.

Obstetricians and Gynecologists to Meet.—The thirty-first annual meeting of the American Association of Obstetricians and Gynecologists will be held at the Hotel Statler, Detroit, September 16 to 18, under the presidency of Dr. Albert Goldspohn, Chicago. Dr. James E. Davis, Detroit, is chairman of the committee of arrangements. All sessions will be held in the Statler Hotel with the exception of the first eve-

ning session which will be held in the Wayne County Medical Building.

Sioux Valley Physicians Meet.—The annual meeting of the Sioux Valley Medical Association was held in Sioux Falls, S. D., July 24, and the following officers were elected: president, Dr. Joseph G. Parsons, Sioux Falls, S. D.; vice presidents, Drs. Alfred E. Spalding, Luverne, Minn., Daniel T. Quigley, Omaha; secretary, Dr. George S. Browning, Sioux City, Iowa, and treasurer, Dr. H. G. J. Koobs, Scotland, S. C. It was decided to hold the next meeting of the association at Sioux City, Iowa, in January, 1919.

FOREIGN

Course of Lectures on Soldiers' Malingering.—The military authorities of the Milan district recently organized a course of lectures on what they called autolesionism, in charge of Bondi, professor of legal medicine at Siena. The lectures were given by six of the higher army medical officers.

Red Cross Official Killed by Enemy Shell.—The *Policlinico* pays tribute to Lieutenant McKey, in charge of an advanced Red Cross station on the Piave front, who was killed by an enemy shell. It is said that he is the first officer of the American Red Cross to give his life for the cause of the Allies.

Rank for Italian Medical Officers.—The *Riforma Medica* states that until recently the higher army medical posts were the *tenente generale medico*, who served as chief inspector of the entire medical service, and three positions as *maggior generale medico*, who served also as inspectors. A recent decree institutes the rank of brigadier-general, and provides for seven medical brigadier-generals, with age limit of 62, and pay of 9.000 lire, about $1,800.

Compulsory Vaccination of All Government Employees.—The *Presse médicale* states that a decree emanating from the minister of the interior renders compulsory vaccination or revaccination of every person, regardless of age, belonging to the permanent, temporary or auxiliary personnel of the state administration and all services connected therewith, unless within ten days they can produce a medical certificate stating that they have been successfully vaccinated against smallpox within less than five years. The penalties for infraction are also fixed by law.

Blinded Soldiers.—The *Nederlandsch Tijdschrift* mentions a report of Professor Silex, a Berlin ophthalmologist, to the effect that he has trained 250 blinded soldiers to be self-supporting, and has found that many of them are able to fill positions after the completion of their training which no one would have supposed a blind man could fill. Among the blinded men were two lawyers, four musicians, two teachers, six merchants and one physician. Positions in factories are now held by eighty-eight; thirty-six are typists or correspondents; thirty-three are doing agricultural work, and seven are telephone operators.

German Children Sent to the Netherlands.—The *Nederlandsch Tijdschrift* states that 20,000 children were sent from Germany to the Netherlands for a longer or shorter stay during 1917. The plan of children's outings of this kind worked so well that a society has now been formed for the Netherlands children, to distribute them in Netherlands families in the country for similar outings. Dr. Dekker of s'Gravenhage is the leading spirit of the movement, backed by the Association to Arrest the Spread of Tuberculosis. The minister of the interior has appropriated 50,000 florins for the work, and committees are being formed in every district, with a central commission in charge of the whole.

The Campaign Against Tuberculosis in Italy.—The *Policlinico* expatiates on the valuable information that is now being accumulated in Italy as all men under 40 have been subjected to medical examination with a view to military service. The authorities are thus having placed in their hands a complete census of all the male tuberculous subjects throughout Italy. They are studying how to use this for an actual service of defense against the spread of tuberculosis—not to ostracize the tuberculous, but to combat the spread of the disease as much as possible. The aim is not to limit the survey to men but to seek out tuberculous girls and women likewise. Hitherto there has been no supervision of the well-to-do tuberculous, and they have never been under authoritative control. But all this is changed, and the names and addresses of all the tuberculous men in the country are now catalogued. It is hoped by this means to be better prepared to meet the menace of the wider spread of tuberculosis which seems impending not only as the inevitable consequence of the war, but as the effect of carelessness on the part of individuals who, without much sacrifice, could avoid infecting others.

Message from French Physicians to the American Red Cross and American People.—The Union des syndicats médicaux of France—representing 10,000 physicians—recently sent the following message of appreciation and gratitude to the president of the American Red Cross in France and through him to the people of America:

"Le Conseil d'administration de l'Union des syndicats médicaux de France,

"Après avoir, au nom des dix mille médecins qu'il représente, écrit au président de la Croix-Rouge américaine en France afin de lui exprimer sa reconnaissance émue pour tout le bien qu'elle est venue accomplir avec une inlassable générosité et un dévouement admirable dans notre pays,

"Envoie au peuple américain et à son noble représentant l'assurance de sa profonde admiration et de sa vive reconnaissance.

"Il a l'intime conviction que la confraternité d'armes des deux grandes Républiques et leur union indissoluble, dans l'avenir, seront la sauvegarde des idées de paix, de droit, de justice et de progrès." (Published in the *Presse médicale*, July 8, p. 455.)

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

State Antituberculosis Dispensary Opened at Buenos Aires.—The first national dispensary for diseases of the chest has been opened at Buenos Aires, fully equipped for consultation, diagnosis and welfare work for the tuberculous in general. Food is distributed to the tuberculous poor, and the whole institution is said to be well equipped in every respect. It was planned and is managed by Dr. E. R. Coni, who has been a leader in Argentina for many years in matters of hygiene and prophylaxis. He hopes to have a dispensary of the kind in different parts of the city, and outlines a plan for fifteen others, locating them in districts where the tuberculosis mortality is highest. The one already installed is in the San Cristobal district which has a population of over 70,000 and a tuberculosis mortality of 8.7 per ten thousand inhabitants. In the larger centers he estimates that there should be a dispensary of the kind for each hundred thousand inhabitants. His experience in the four dispensaries that have been maintained by the Liga Argentina contra la Tuberculosis has shown that it is difficult to find good quarters for such dispensaries both on account of the buildings not being adapted for the purpose, and because owners refuse to rent for a dispensary of the kind, or ask exorbitant rents. Consequently the league found it advisable to erect its own buildings for its second dispensary, and the same plan has been followed at Rosario, which now has a model building and dispensary at work. But the funds available did not permit the league and will not permit the state to erect more buildings for the purpose.

BUENOS AIRES LETTER

Buenos Aires, June 19, 1918.

Tumult in Cordoba University

The movement for reform in the management of the universities of Argentina—which are all state institutions—was described in a previous letter, page 297. An unexpected turn has been taken as, according to the new arrangement, the faculties met and elected Dr. A. Nores of the medical faculty to be rector of the university. The students regarded this election as the result of a reactionary confabulation, and that it would annul all the progress and the reforms which had been inaugurated. On account of this, before the election could be formally concluded, the students invaded the hall in which the representative board meeting was being held, and great tumult resulted. The students declared a strike, and appealed from the election to the national government. The students at the University of Buenos Aires also called a sympathetic strike for four days, attendance at class to be suspended for this four days period.

The Campaign Against Tuberculosis

The national government has just inaugurated in the mountains near Cordoba, at Bialet Massé, a state sanatorium for climatic treatment of tuberculosis. The sanatorium can shelter 1,200. A preventorium dispensary, called the Dr. J. A. Ortiz y Herrera dispensary, has been opened at Cosquin,

Sierra de Cordoba, and Buenos Aires has also a new dispensary for the purpose, a model of its kind, in charge of Dr. E. R. Coni.

Prizes Awarded by the University

The prize offered by the medical faculty for 1917 for the best thesis presented, has been awarded to Dr. A. Gutierrez for his work "Topographic Anatomy of the Peritoneum." The Wilde prize for the best thesis on forensic medicine was bestowed on Dr. O. Loudet, author of "Passion in Crime." The prize for the best work of the year 1915-1916 was awarded to Dr. P. C. Escalada for his work on "Curie Therapy."

Resignation of New Chief of Public Health Service

Dr. A. Alfaro has resigned the presidency of the Departamento Nacional de Higiene for the reason that the government did not decide to adopt the plan he had advised as to the reorganization of the personnel, and the plans of prophylaxis which he had outlined.

Epidemics of Typhoid

Typhoid fever appears in epidemic form every year in a considerable part of the country. Last year the accidental infection of one of the sources of the water supply caused a water-borne epidemic of typhoid at Lomas, Banfield and Temperley, close to Buenos Aires. The investigations of the public health service have demonstrated that the first and second layers of water are contaminated, judging from their content in colon bacilli. The last meeting of the Sociedad de Higiene, Microbiologia y Patologia discussed the matter, and it was reported that paratyphoid A and B bacilli had likewise been encountered.

Normal Beef Serum in Treatment of Anthrax

Treatment of anthrax with normal beef serum continues to give excellent results. At the Hospital Muñiz about 250 cases have been treated with it, the mortality keeping below 2 per cent. The demand for anti-anthrax serum at the bacteriologic institute of the national public health service has been so great that the animals have had to be bled white to provide the serum asked for.

Rapid Immunization of Horses Producing Antitoxins

At the bacteriologic institute of the public health service, Kraus and Sordelli have succeeded in obtaining from the animals used for the purpose antidiphtheria and antitetanus serum in from one to two months. The diphtheria antitoxin is produced by injecting in rapid sequence and in rather large doses the toxin, exactly neutralized. The antitetanus serum is prepared with toxoids. The same method as used for diphtheria has given excellent results in the production of snake venom antiserum.

PARIS LETTER

PARIS, July 6, 1918.

Personal

Dr. Paul Carnot, formerly associate professor in the Faculté de médecine de Paris, has been made professor of therapeutics in place of Dr. Marfan, who has been called to the newly created chair of hygiene and the clinic of diseases of childhood.

June 18, the Academy of Medicine elected two members. Dr. Hartmann, professor of clinical surgery in the Faculté de médecine of Paris, was elected a member of the section on surgical pathology, and Dr. Thibierge, physician to the hôpital Saint-Louis and secretary general of the Société de médecine légale de France, was elected a member of the section on public hygiene and legal medicine.

Determination of Time of Failure of Nerve Suture

Dr. Louis Mourier, sous-secrétaire d'Etat du Service de Santé militaire, has asked the Société de chirurgie de Paris the following question: In cases of nerve suture, what is approximately, for each important nerve, the time considered necessary to conclude that the intervention has proved ineffectual? The society appointed a committee to consider that problem. The spokesman for the committee, Dr. Albert Mouchet, reported that in the present state of our knowledge it is impossible to give a definite answer to the question propounded. Two types of cases are encountered following nerve suture: (1) one type in which no sign of return of either motor or sensory function is noted; (2) the type of case in which the presence of certain signs (motor, sensory, electric) permits of prognosticating the return of function, either partial or complete. In the cases of the first type, there is no need to consider separately each of the principal nerves in order to determine the time of incurability. In general, a bad prognosis should not be made until at least two years have elapsed since the time of suture. In the second class, it is impossible to set any time when the case may be said to be incurable.

Intravenous Administration of Hexamethylenamin

At a recent meeting of the Société médicale des hôpitaux de Paris, Dr. Loeper discussed the intravenous administration of hexamethylenamin. The solution used contains 0.25 gram of hexamethylenamin to the cubic centimeter of cold sterilized water. Dr. Loeper and Dr. Grosdidier have used these injections in four groups of cases: typhoid, bronchopneumonia and pneumonia, diseases of the kidneys, and of the liver. The results are said to have been infinitely superior to those obtained from hypodermic or oral administration of the drug. The action has always been threefold: antipyretic, sedative and diuretic.

In collaboration with Dr. C. Wagner, Dr. Loeper has been able to confirm this triple action, and they have also found that the intravenous use of hexamethylenamin can be applied advantageously in certain cases of pulmonary and visceral tuberculosis. They have noted a favorable effect on the fever, the toxemia and sepsis, and that its antipyretic action, while slow, is progressive, that it has sedative effects, and that depression is never caused, and, furthermore, it seems to reduce the toxic phenomena.

Saline Solutions in the Treatment of Gastro-Intestinal Atony

At a recent session of the Académie de médecine, Prof. Georges Hayem enumerated the excellent results he has had from the use of saline solutions in the treatment of gastro-intestinal disturbances. He gave two new formulas of saline solutions, taken from the analysis of the waters of Châtelguyon. One of these formulas contains 2.50 grams each of sodium chlorid and chlorid of magnesium crystals, and 2 grams of bicarbonate of soda per 1 liter of water. In the second formula the bicarbonate of soda is replaced by sulphate of soda, 3 to 5 grams. Hayem has used these solutions in the treatment of myasthenic dilatation of the stomach with or without marked muscular atrophy and absence of any mechanical obstacle to evacuation. In these cases, one generally observes a hypopeptic type and glandular atrophy more or less advanced. In a large number of these patients there is also present intestinal atrophy, which is favorably affected by the first of these solutions. If constipation persists, then the second solution may be used to good advantage.

Antimalaria Measures

The Lannelongue Institute of social hygiene, which, in spite of the war, has begun its work of social experimentation and sanitary education under the direction of Senator Paul Strauss, president, and Dr. Roux, vice president, has responded to the desire expressed by M. Brissac, director of the Assistance et de l'Hygiène publiques au ministère de l'intérieur, by organizing a series of practical conferences on the campaign against the mosquito and malaria. Thirty-five chefs de services sanitaires, professors, etc., have been sent to Paris by the prefects to attend these conferences held by two specialists, Drs. Mesnil and Roubaud of the Institut Pasteur, in the laboratories of that institution. These conferences will be terminated by a visit of research to the habitat of mosquito larvae and an examination of practical methods of extermination.

Disposition of Suspected Cases of Tuberculosis

Dr. Louis Mourier, sous-secrétaire militaire, has decreed that hereafter every soldier with known tuberculosis should not be kept at the posts or in general hospitals. They should be sent without delay to a sanatorium, except those presenting advanced lesions—cavities—who are to be treated in the isolation wards of hospitals not specializing.

All patients in whom pulmonary bacillosis is seriously suspected should be hospitalized in the *services de triage* after consultation with the medical chief of the medical sectors. The doubtful cases, of which many are not tuberculosis and the men are able to render service, will be subjected to observation by the physicians of the *dépôts*. Depending on their general conditions, these men will be kept at rest or employed with discrimination in the open air or in work compatible with the results of the medical observation to which they are subjected.

The American Red Cross

The American Red Cross, through its agent at Berne, Mr. Charles P. Dennett, has given to the Swiss Red Cross the

sum of 500,000 francs in recognition of the humanitarian work done by the Swiss on behalf of the interned allied soldiers, the civil repatriates and the *évadés* passing through Switzerland, and for the medical care and the welfare work which benefited the French, English, Italians, Serbs and others.

Mm. Ambroise Rendu and Poiry, vice presidents of the municipal council of Paris, extended the thanks of Paris to Mr. Beaty, president of the American Red Cross in France, for valuable assistance given to the *petits Parisiens à la campagne*, the work of providing country outings for Paris children.

In Memory of Pozzi

The city of Bergerac (department of the Dordogne), the native city of Professor Pozzi, has decided to name one of its principal streets in memory of the noted surgeon who died recently.

LONDON LETTER

London, July 8, 1918.

Inter-Allied Food Commission

The arrival of experts representing the allies to consider the food problem was announced in a previous letter. It has been decided that the minimal food requirements of "the average man" (weighing 154 pounds) doing average work during eight hours a day represent an energy value of 3,300 calories daily. In case it should become impossible to supply this requisite amount of food, a reduction of 10 per cent. on the foregoing figure can be supported for some time without injury to health. The commission agreed to accept Lusk's figures as to the proportion of this amount to be assigned to women and to children of different ages. The following conclusions have been agreed on: 1. To state the weights of the various foods produced in each Allied country in metric tons. 2. It is not desirable to fix a minimal meat ration in view of the fact that no absolute physiologic need exists for meat, since the proteins of meat can be replaced by proteins of animal origin, such as those contained in milk, cheese and eggs, as well as by proteins of vegetable origin. The commission, on the other hand, resolved to fix a desirable minimal ration of fat—75 gm. per average man per day. The ration will be made up of (*a*) fats of vegetable origin and (*b*) fats of animal origin. If the amount of fats of vegetable origin are insufficient for this purpose, it may be necessary to maintain a certain stock of animals to furnish this fat. 3. The commission established the "man value," that is, the number of average men equivalent to the population of each of the Allied countries. This "man value" is taken as the basis for calculating the exact amount of food which must be provided for the adequate nourishment of the total population of each country. 4. The commission considered the estimates in tons of the home productions of the soil furnished by each Allied country for the year 1918-1919. These statistics will serve as a basis for determining the amount of food available for men and for animals, respectively, in each country. 5. Each delegation, in calculating the amount of calories available for men, should assign to men the maximal possible proportion of all cereals, except oats. 6. A uniform average milling extraction of 85 per cent. for wheat should be adopted throughout the Allied countries. This extraction may vary from 80 per cent. in summer to 90 per cent. in winter, and it can apply to the United States only as regards their internal consumption, and then only in case of scarcity. 7. The methods of reserving the maximal possible proportion of the cereal production for the use of man may vary in each country. Man should always take precedence over animals in the allocation of food. If this principle be accepted in the fixing of prices, it is the prices of animal products which should be limited, rather than those of such vegetable products of the soil as may serve equally well for feeding men and animals. Thus the production of veal, pork and poultry at the expense of food available for man should be discouraged, and this is best achieved by fixing a price for those animal products which will make it unprofitable for the producer to feed them on cereals. 8. The commission reserved for its next meeting the task of examining the figures which will enable it to determine the caloric value of the home production of each of the Allied countries. The determination of this figure, compared with the needs in calories of the population of each country will enable the commission to deduce the amount of imports necessary for the maintenance of the population or the exportable surplus, as the case may be. 9. In all the Allied countries, any propaganda, having for its object the encouragement of food production and of economy in the use of food, should be organized and directed by men of science well acquainted with the subject.

The Antituberculosis Campaign

Dr. F. N. Kay Menzies, principal assistant health officer of the London County Council, speaking on the antituberculosis campaign in London, said that in England and Wales the disease killed 60,000 persons a year, and in London alone, 10,000 persons. The number of deaths, however, was less than half the number in the sixties. That was due not only to improved sanitation and nutrition, education regarding the infectious nature of the disease, and an improved milk supply, but also to the movement in London for the provision of special dispensaries and institutional treatment. In July, 1914, when the campaign was started, there were thirty beds in hospitals and sanatoriums for the treatment of children, and no beds for adults. The total accommodation at present was for about 1,000, namely, 800 for children and 200 for adults. Owing to the difficulty of providing fresh buildings, hundreds of discharged soldiers were waiting for treatment in sanatoriums. With regard to the future, considerable development was likely to take place in the provision of farm and garden colonies. There was also likely to be a great development in the segregation of advanced cases, and more open-air schools for children. Lastly, there was likely to be enormously improved conditions of houses and the removal of insanitary areas.

Improved Health of Trinitrotoluene Workers

The attention of the Minister of Munitions has been drawn to the great reduction that has recently occurred in the number of cases of poisoning among trinitrotoluene workers. In the six months, October, 1916, to March, 1917, there were 169 cases of serious illness, whereas in the corresponding six months of 1917-1918 there were forty-two cases; in April of this year, four cases, and in May, only one case. This result is due to close medical supervision of the workers, with improved methods of working, and the substitution of mechanical processes wherever possible. The minister, therefore, has decided that the factory medical officers, acting within their power under Rule 8 of the trinitrotoluene regulations, may permit continuous employment of persons on trinitrotoluene work. The effect of this will be a halving of the number of workers coming into actual contact with this explosive.

Baby Week

During the past week, meetings for the promotion of the health of babies, and lectures have been held all over the country. In London a mothercraft exhibition was opened by the dowager Lady Londonderry, and an address was given by Mr. Hayes Fisher, president of the Local Government Board. He had no doubt that we and our Allies would emerge triumphant from this war, but we must take care that we were well supplied with a healthy population for the future, and that the racial cradle gained a substantial victory over the racial coffin. Unless we did so, the waste places of the earth would not be peopled by our race, but by another race with a different language and ideals, a people lower in the ranks of civilization and Christianity. The birth rate everywhere was falling very heavily year by year, but we could comfort ourselves with this, that if we were producing fewer babies Germany was producing fewer still. Comparing the number of babies born in London in 1917 with the number born in Berlin (the population of London then being 4½ millions, and that of Berlin a little over 2 millions), he said that London, although its birth rate was falling, produced four babies for one baby produced in Berlin. While Hamburg had the advantage over Liverpool in having a quarter of a million more population, in 1917 Liverpool produced two babies for every baby produced in Hamburg. Taking the whole of the principal English and German towns, he noted that, while our birth rate had fallen during the war, their birth rate had fallen much more. Infant mortality in the great towns of England in 1917 was 104 per thousand live births, and in England and Wales, 97. In Germany it was something about 30 per cent. greater than in England and Wales. In 1916 the infant mortality throughout England and Wales for all the urban areas was 95; in Germany it was 133. They must encourage all local authorities to set up maternity and infant centers. He never grudged money that was spent on looking after the health of the children, for children, after all, were the greatest asset of the nation. He was waiting for the passage of the maternity and child welfare bill which would enable local authorities to obtain grants from the government equal to those they made for the hospital treatment of children up to 5 years of age. Crèches and day nurseries would be set up.

The Influenza Pandemic

As stated in my last letter, the influenza pandemic which has prevailed in most of the countries of Europe is widespread in this country. But it is not of a severe type. The deaths in one week were only ninety-six. At Middlesbrough, eleven seamen have died on one ship and four on another from pneumonia following influenza. The staffs of many businesses have been seriously depleted, and schools have had to be closed. The medical profession has been affected in two ways. The amount of work to be done has enormously increased, and at the same time several of its members have been struck down. In consequence of the shortage already existing from the war, it has proved impossible in many cases to supply a locum tenens. Some evidence has been brought forward that the present epidemic, while clinically identical with influenza, is not that disease but is due to a different organism. Investigation of the exudate from the upper air passages have been made by some Canadian medical officers and described in the *Lancet*. The influenza bacillus was never found, but there was always present a gram-positive organism which they consider to be the cause. Of course it has long been recognized that attacks of so-called influenza are often due to organisms other than the influenza bacillus.

Marriages

LIEUT. SIMON LEWIS WRONKER, M. R. C., U. S. Army, Rochester, N. Y., on duty at the detention camp, Camp Sherman, Chillicothe, Ohio, to Miss Lillian Selma Leight of New York City, at Rochester, N. Y., July 21.

LIEUT. SIDNEY BALDWIN BELLINGER, M. R. C., U. S. Army, Council Bluffs, Iowa, on duty at Camp Greenleaf, Fort Oglethorpe, Ga., to Miss Ava C. Glenn of Council Bluffs, Iowa, July 19.

LIEUT. RAYMOND THORNTON POTTER, M. R. C., U. S. Army, Ellenville, N. Y., on duty at Fort Sam Houston, Texas, to Miss Margaret R. Smiley of Minnewaska, N. Y., July 23.

CAPT. WILLIAM DAVISON NAPHEYS, M. R. C., U. S. Army, Chicago, on duty with the American Expeditionary Forces, France, to Mrs. Alberta M. Finch of Chicago, recently.

LIEUT. RAYMOND COTTRELL HOOKER, M. R. C., U. S. Army, Richmond, Va., on duty at Camp Dix, N. J., to Miss Esther Maude Cheatham of Chesterfield County, Va., June 12.

LIEUT. WILLIAM LATANE VARN, M. R. C., U. S. Army, Cumberland, Va., on duty at Fort Oglethorpe, Ga., to Miss Eleanor Ford Digges of Richmond, Va., June 16.

CAPT. THOMAS NEWMAN DAVIS, M. R. C., U. S. Army, Lynchburg, Va., on duty at Camp Upton, N. Y., to Miss Mary Ely Lancaster of Richmond, Va., July 6.

ASST. SURG. TALMADGE BRYAN WEATHERLY, U. S. N. R. F., Richmond, Va., on duty at Quantico, Va., to Miss Ruby Clinkscales of Richmond, Va., July 6.

MAJOR FRANK KEENE TRAVERS WARRICK, M. R. C., U. S. Army, to Miss Beulah T. Pattison, both of Richmond, Va., in New York City, June 25.

LIEUT. SAMUEL HAROLD BOYD, M. R. C., U. S. Army, on duty at Camp Merritt, N. J., to Miss Bessie Mae Dutton, both of Philadelphia, July 16.

LIEUT. DEAN BALDWIN COLE, M. R. C., U. S. Army, Chilhowie, Va., to Miss Llewellyn Garland of Richmond, Va., June 29.

LIEUT. EDWARD TURNER AMES, M. R. C., U. S. Army, to Miss Ethel Miller Blanton, both of Richmond, Va., June 29.

LIEUT. EDWIN PAUL KENNEDY, M. R. C., U. S. Army, Cleveland, to Miss Miriam Tyler of Richmond, Va., July 4.

WILLIAM THOMAS RAINEY, Badin, N. C., to Miss Merle Louise Weaver of Greensboro, S. C., June 27.

ODD ECKFELT, Kwangchow, Honan, China, to Miss Alice May Sowerby of Peking, China, May 21.

HOMER AUSTIN STROUP to Miss Anna Jones, both of Artesia, N. M., at Albuquerque, N. M., July 13.

CHARLES HENRY BURKE, Algona, Iowa, to Miss Jeannette Grissel of Davenport, Iowa, July 17.

ALEXANDER C. CIRKLER to Miss Irene Robinson, both of Minneapolis, in Chicago, July 25.

CAREY E. WAMSLEY to Miss Stella Goetze, both of Newport, Ky., July 10.

Deaths

Christopher Tompkins, Richmond, Va.; Medical College of Virginia, Richmond, 1870; aged 70; at one time a Fellow of the American Medical Association; one of the founders and an honorary member of the Medical Society of Virginia; for six terms president of the Southern Medical College Association; deputy coroner of Richmond for two years; for many years secretary and treasurer of the Richmond Academy of Medicine; chief of the Richmond City Dispensary; lecturer on materia medica and therapeutics; assistant surgeon in obstetrics; professor of anatomy from 1880 to 1884; professor of obstetrics from 1884 to 1899, thereafter emeritus professor of obstetrics; and since 1893 dean of the faculty of his alma mater; a distinguished obstetrician; major and surgeon of the Fourth Battalion Artillery, Virginia Volunteers; died suddenly at his home, July 20.

George Edward Fell, Chicago; University of Buffalo, 1882; aged 68; a Fellow of the American Medical Association; who was the first to save human lives by means of mechanical respiration, thirty-one years ago, as the result of experiments on animals which he conducted when professor of physiology in his alma mater; who also conducted the scientific experiments which resulted in 1890 in the construction of the electric chair for use in capital punishment, and whose most recent invention was an apparatus whereby an individual may remain under water a considerable time without danger; one of the founders and at one time president of the American Microscopical Society; a Fellow of the Royal Microscopical Society of England; died at his home, July 29, from dilatation of the heart.

Thomas Neptune Gray, East Orange, N. J.; College of Physicians and Surgeons in the City of New York, 1879; aged 65; a Fellow of the American Medical Association; recording secretary of the Medical Society of New Jersey; president of the New Jersey Academy of Medicine, and vice president of the New Jersey Pediatric Society; one of the founders and once editor of the East Orange *Gazette;* a specialist in tuberculosis, and diseases of children; chief of the bureau of tuberculosis of Newark, N. J.; city physician of East Orange for several years; died at his home, July 22, from cerebral hemorrhage.

Lucien Lofton, Richmond, Va.; Southern Medical College, Atlanta, Ga., 1894; aged 46; a member of the Medical Society of Virginia; formerly president of the Virginia Coroners' Association; secretary of the Virginia Public Health Association, and president of the Seaboard Medical Association of Virginia and North Carolina, and Southside Medical Association; medical inspector of the Richmond Health Department; formerly local surgeon to the Seaboard Air Line, Southern Railway, and Atlantic Coast Line; coroner and health officer of Greensville County; died at his home, July 21, from cerebral hemorrhage.

Medical Inspector Walter Scott Hoen, Lieutenant Commander, U. S. Navy, Washington, D. C.; University of Virginia, Charlottesville, 1902; aged 40; a Fellow of the American Medical Association; who was appointed to the Navy, June 2, 1903, and was on duty with the First Provisional Brigade, United States Marine Corps, at Port au Prince, Haiti; died in that place, recently, from angina pectoris.

Howard A. Brown, Carroll, Iowa; Starling Medical College, Columbus, Ohio, 1875; aged 64; a Fellow of the American Medical Association, and once president of the Fairfield County Medical Society; for several terms a member of the village council and president of the local school board; who underwent operation for appendicitis at the Protestant Hospital, Columbus, June 29, died at his home, July 13.

James Henry Stuart, Boston, New York University, New York City, 1880; aged 67; at one time a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; treasurer of the New England Alumni of New York University; died at his home, July 17, from cerebral hemorrhage.

Enoch Pink Lawrence, Flushing, L. I., N. Y.; New York University, New York, 1880; aged 62; a Fellow of the American Medical Association; consulting physician to Flushing and St. John's hospitals, Long Island City, and physician-in-charge of St. Joseph's Orphanage; died at his home, July 26, from endocarditis.

Walter Anson Lee, Sheridan, Mich.; Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, 1904; aged 64; at one time a Fellow of the American Medical

Association; a member of the Michigan State Medical Society; died at his home, July 13, from malignant disease.

Joseph Carpenter Clark, Olean, N. Y.; New York University, New York City, 1885; aged 69; formerly a member of the Medical Society of the State of New York; surgeon in charge of the Olean (N. Y.) Hospital since 1889; died, July 22, at the home of his wife's mother in Buffalo.

Bartony T. McClure, McCurtain, Okla.; Memphis (Tenn.) Hospital, Medical College, 1892; aged 44; at one time a Fellow of the American Medical Association; died at his home, July 22, from a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Mary Dugan Ardery, Garden City, Kan.; Keokuk (Iowa) Medical College, 1891; aged 76; formerly a member of the Kansas Medical Society; who retired from practice several years ago on account of paralysis; died at the home of her daughter in Garden City, July 23.

Chesley Lanier Carter, Chatham, Va.; University College of Medicine, Richmond, Va., 1903; aged 40; at one time a Fellow of the American Medical Association; a member of the Medical Society of Virginia; died at his home, July 11, from nephritis.

Thomas S. Hawley, St. Louis; Washington University, St. Louis, 1861; aged 81; at one time a Fellow of the American Medical Association; surgeon of the Eleventh Missouri Volunteer Infantry during the Civil War; died at his home, July 25.

John Monroe Craig, Washington, D. C.; Medical College of Ohio, Cincinnati, 1866; aged 73; for three years president of the Crawford County (Ind.) Medical Society; died in the hospital of the National Soldiers' Home, Washington, D. C., July 23.

David W. Bright, Lewisville, Ark.; Kentucky School of Medicine, Louisville, 1877; aged 63; at one time a Fellow of the American Medical Association; president of the Lafayette County Medical Society in 1913; died at his home, July 22.

Thomas F. Frere, Franklin, La.; Tulane University, New Orleans, 1892; at one time a member of the Louisiana State Medical Association; also a druggist; postmaster of Franklin; died at his home, July 15, from heart disease.

Francis Edwin Whitley, Webster City, Iowa; Rush Medical College, 1881; aged 61; a Fellow of the American Medical Association; died at the home of his daughter at Fort Dodge, Iowa, July 25, from heat prostration.

William Henry Watson, Decatur, Ala.; University of Louisville, Ky., 1894; at one time a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama; died at his home, July 4.

Samuel Orr Loughridge, Peoria, Ill.; Jefferson Medical College, 1866; College of Physicians and Surgeons in the City of New York, 1870; aged 79; died at the home of his son, at Germantown, Philadelphia, July 21.

Carl Elton Phelps, Los Angeles; University of Southern California, Los Angeles, 1906; aged 40; died at his home, July 15, from the effects of poison, self-administered, it is believed, with suicidal intent.

Charles Walton Sanders, New York City; College of Physicians and Surgeons in the City of New York, 1878; aged 71; a member of the Medical Society of the State of New York; died at his home, July 22.

Alfred Kane Follett, Granville, Ohio; Starling Medical College, Columbus, Ohio, 1882; aged 60; while working on his farm near Granville, July 23, was struck by lightning and instantly killed.

Frederick Rowland Marvin, Albany, N. Y.; College of Physicians and Surgeons in the City of New York, 1870; aged 70; well known as a writer and clergyman; died at his home, July 22.

Ruth A. Young, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1918; aged 32; died in the Woman's College Hospital, July 20, after a surgical operation.

John Huntington, Starbuck, Wash.; University of Oregon, Portland, 1891; aged 67; at one time a member of the Washington State Medical Association; died at his home, July 14.

S. B. Emerson, Port Washington, Ohio; Medical College of Ohio, Cincinnati, 1869; aged 75; died at the home of his sister in Cleveland, July 6, from disease of the intestine.

George Calder, Claysville, Pa.; Eclectic Medical College of Pennsylvania, Philadelphia, 1870; aged 83; died at the home of his daughter in Washington, Pa., July 27.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

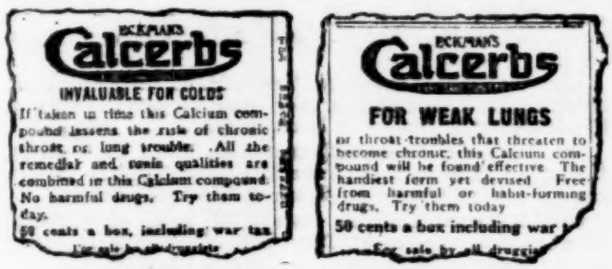
ECKMAN'S CALCERBS

"Eckman's Calcerbs" is put out by the same concern as that which exploits "Eckman's Alterative" and is advertised for the same conditions. "Eckman's Alterative," as some of our readers will remember, was an alleged consumption cure which the A. M. A. chemists found to be essentially a mixture of alcohol, calcium chlorid and cloves, and which was sold under such claims as:

"A medicine made for the cure of tuberculosis. It has cured this disease again and again."

"Cures have been effected . . . where no intelligent care was taken of the patient, where money was scarce; good food and good cooking unusual."

In due time the federal authorities got around to this nostrum, declaring that the curative claims made for it were false, fraudulent and misleading. The government charged that, while Eckman's Alterative was sold as a preventive for pneumonia "in truth and in fact said article of drugs could not be so used" and that while the manufacturers claimed that it would cure tuberculosis "in truth and in fact said article of drugs would not cure tuberculosis or consumption." The courts sustained the government's


ECKMAN'S
Calcerbs
INVALUABLE FOR COLDS
If taken in time this Calcium compound lessens the risk of chronic throat or lung trouble. All the remedial and tonic qualities are combined in this Calcium compound. No harmful drugs. Try them today.
50 cents a box, including war tax
ECKMAN'S
Calcerbs
FOR WEAK LUNGS
or throat troubles that threaten to become chronic, this Calcium compound will be found effective. The handiest form yet devised. Free from harmful or habit-forming drugs. Try them today
50 cents a box including war

Typical advertisements of Eckman's Calcerbs.

contention and condemned the product, whereupon the Eckman concern carried the case up to the Supreme Court of the United States and attacked the constitutionality of the Sherley Amendment of the Food and Drugs Act. The Sherley Amendment prohibits false and fraudulent therapeutic claims. Fortunately, the United States Supreme Court upheld the lower court. In answering the contention of the Eckman concern that Congress had no right to "prevent a person from making statements or claims concerning the virtue of drugs, whether modest or extravagant" the Supreme Court said:

"We find no ground for saying that Congress may not condemn interstate transportation of swindling preparations designed to cheat credulous sufferers and make such preparations, accompanied by false and fraudulent statements, illicit with respect to interstate commerce, as well as, for example, lottery tickets."

So much for the "Alterative." "Calcerbs" are not frankly sold as a "cure for consumption"; yet as an appeal to the consumptive "Calcerbs for weak lungs" is, doubtless, just as alluring and just as potentially dangerous.

"If taken in time this calcium compound lessens the risk of chronic throat or lung trouble."

"All the remedial and tonic qualities are combined in this calcium compound."

The purchaser of Calcerbs learns, from the leaflet that accompanies the preparation, that it is for the treatment of "Coughs and Colds, Asthmatic, Catarrhal and Pulmonary Troubles, Weak Lungs, and as a Tonic." One page of the leaflet consists of what purport to be "Some Interesting Comments on Calcium (Lime) Treatment." The "comments" are quotations from various medical journals regarding the

therapeutic value of calcium salts. Of course no comments of an unfavorable character are quoted.

Because of the number of inquiries regarding Calcerbs the Association's chemical laboratory was asked to analyze this product. The report follows:

LABORATORY REPORT ON CALCERBS

"Three original boxes of 'Calcerbs' were purchased on the open market by the Chemical Laboratory. Within the box of tin, sealed by means of adhesive tape, was a waxed-paper bag, containing forty white-coated tablets. The average weight of each tablet was 0.83 gm. (12.9 grains). Test indicated that the tablets contained approximately 20 per cent. of calcium chlorid, the hygroscopicity of which explains the use of a tightly protected package in order to exclude moisture. The tablets were also found to contain calcium carbonate, an emodin-bearing (laxative) drug such as aloin, with sugar and a flavoring of cloves. No iodids, alkaloids or heavy metals were found."

It is not necessary to tell physicians that "Calcerbs" are just as impotent to cure tuberculosis as is "Eckman's Alterative." As THE JOURNAL has so many times said, the fundamental viciousness of "consumption cures" lies not so much in the valuelessness of their composition as in the fact that their advertisement leads sufferers to abandon or ignore the hygienic and dietetic measures which hold the only hope. That some physicians have recommended calcium salts in pulmonary tuberculosis, based on the unproved supposition that consumption is due to lime deficiency, is no excuse for a "patent medicine" concern putting out calcium chlorid either in liquid or tablet form under thinly veiled claims that will lead the public to infer that the preparations will cure consumption.

KATHARMON

Report of the Council on Pharmacy and Chemistry

Following inquiries, the Council took up "Katharmon" for consideration and authorized publication of the following report. W. A. PUCKNER, Secretary.

The Katharmon Chemical Company of St. Louis in advertising its Katharmon appeals especially to a profession whose members, should they live up to their ethical code, could not prescribe it.[1] In 1893 (when the publication of "a formula" for proprietary preparations was thought to satisfy the requirements of scientific medicine) an advertisement in THE JOURNAL of the American Medical Association gave the following "formula" for Katharmon:

"Hydrastis Canadensis, Phytolacca Decandra, Acid Salicylous C. P. (from Oil of Wintergreen), Acid Boric C. P., Mentha Arvensis, Thymus Vulgaris, Dist. Ext. Hamamelis Virg. Conc."

In 1907 an advertisement in the Kansas City *Medical Index-Lancet* declared that:

"Katharmon represents in chemical combination the active principles of Hydrastis Canadensis, Gaultheria Procumbens, Hamamelis Virginica, Phytolacca Decandra, Mentha Arvensis, Thymus Vulgaris, with two grains C. P. Boric Acid to each fluid drachm."

Now the advertisements which appear in some medical journals state:

"KATHARMON represents in combination Hydrastis Canadensis, Thymus Vulgaris Mentha Arvensis, Phytolacca Decandra, 10½ grains Acid Borosalicylic, 24 grains Sodium Pyroborate to each fluid ounce of Pure Distilled Extract of Witch Hazel."

A comparison of these so-called formulas shows that they have not only varied from time to time, but that in no instance was a quantitative statement with regard to all the asserted ingredients given.

The Chemical Laboratory of the A. M. A. reports: Katharmon has an alkaline reaction and therefore cannot contain boric acid, salicylic acid or "borosalicylic acid" (the latter is unknown to medical literature except as loosely applied to a simple mixture of boric and salicylic acids). The solution gives tests for sodium, borate, and salicylate and therefore probably contains sodium borate and sodium salicylate. Examined by the methods used for the determination of hydrastin in goldenseal preparations, a residue giving only a faint test for alkaloid was obtained; if present at all, hydrastis canadensis (goldenseal) is there only in very small amounts.

A circular wrapped with the trade package of Katharmon contained the following, palpably unwarranted, claims:

"INTERNALLY it is very useful in acute indigestion, Gastric Catarrh, Diarrhoea and Cholera Infantum."

". . . it has demonstrated its remarkable curative effects, not only in preventing unhealthy conditions of fresh wounds, but also in correcting the decaying of putrefactive processes peculiar to the body under certain circumstances. It has, further, a remarkable efficacy in surface inflammations, whether produced by accident or disease, and is an indispensable remedy in the affections of the mucous membranes of the nose, mouth, stomach, bowels, vagina, uterus, urethra, bladder and rectum."

Katharmon is in conflict with Rules 1 and 4 of the Council on Pharmacy and Chemistry because of its indefinite and secret composition and the method of advertising it indirectly to the public; it is in conflict with Rules 10, 6 and 8, in that it is an irrational shotgun mixture sold under unwarranted therapeutic claims and under a name nondescriptive of its composition.

1. ". . . it is equally unethical to prescribe or dispense secret medicines or other secret remedial agents, . . ." Sec. 6, Art. I, Chapter II, *Principles of Medical Ethics.*

Correspondence

"PREOPERATIVE PURGATION"

To the Editor:—The contribution made to this subject by Peet (THE JOURNAL, July 20, 1918, p. 175) and the subsequent editorial (July 27, p. 283) are quite in line with what I have been teaching for some years. When I was working out the principles of the fourth era of surgery, the physiologic era, in which the patient is to be left as largely as possible to his own resources, it became apparent that the purging of a patient in advance of operation had no good philosophy behind it, as a rule. Furthermore, the patient suffered a certain amount of loss of water and resistance as a result of the purgation.

It was observed that patients brought in from the street with some accident bore operative procedure quite as well as ones who had been given the so-called advantage of preliminary treatment. The ergo in the case left me with the deduction that we might better leave the patient in a normal condition as far as possible when making preparation for operation. I have made an exception to the rule in cases wherein patients were habitually constipated, but have given orders simply to make sure of a fair bowel movement without the application of depleting measures. Furthermore, a cup of tea or coffee in advance of the operation sometimes gives the patient a feeling of resistance which does not belong to an empty stomach. ROBERT T. MORRIS, M.D., New York.

IMPORTANCE OF ATTENTION TO UPPER RESPIRATORY TRACT IN ACUTE OTITIS MEDIA

To the Editor:—In Society Proceedings, THE JOURNAL, July 27, 1918, p. 307, in a report of the Lenox meeting of the American Pediatric Society, there is an abstract of a paper by Dr. Thomas S. Southworth of New York entitled "Are the Present Frequency of Acute Otitis Media and the Subsequent Mastoid Operation in Some Measure a Reproach to Pediatrics?" Accompanying it is an abstract of a discussion by eight well known pediatricians. The paper, with the discussion, is apparently intended to cover, in a general way, the prevention and treatment of acute middle ear inflammation and the prevention of mastoid involvement.

I am pained beyond expression to observe that, so far as these abstracts are concerned, there is not a single instance of the mention of the most important consideration in the care and prevention of these cases, which is careful attention to the upper respiratory tract, with especial reference to nasal and postnasal obstruction and infected and diseased tonsils.

It may be taken for granted, of course, that every one of these nine gentlemen is thoroughly familiar with this fact;

but it is strange that not one even mentioned it, according to the general abstracts. I mention the matter merely because I believe this is one of the most important subjects in pediatrics, and I think it would be unfortunate, indeed, if the profession as a whole, in reading a report of this kind, should be unconsciously led into minimizing a point in the care and prevention of these cases which I believe to be paramount.

J. W. Jervey, M.D., Greenville, S. C.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MENTAL HYGIENE SOCIETIES AND INSTITUTIONS

To the Editor:—The Division of Mental Defect and Delinquency, State Board of Charities, State of New York, has been anxious to perfect its mailing list and finds that it is unable to locate the name, title and address of the individual or commission at the head of the Problem of Mental Defect in each state in the United States. Does such a list exist, and if so, do you know where we can find it? Any information given us along this line will be greatly appreciated, as we wish to send such individuals or commissions information and other bulletins relative to the problem of the care and treatment of mental defectives and wish our work to be placed where it will be most appreciated.

Chester L. Carlisle, M.D., New York.
Superintendent, Division of Mental Defect and Delinquency.

Answer.—In "Mental Hygiene," published by the National Committee for Mental Hygiene, 50 Union Square, New York, in the issue for January, 1918, there is a "Directory of Societies and Committees for Mental Hygiene." In the same journal for January, 1917, in connection with an article by W. E. Fernald, there is a "List of Public Institutions for the Feebleminded and the Epileptics in the United States."

MAMMALA

To the Editor:—Have you on record the contents of a so-called dry milk, "Mammala," put on the market by the Mammala Company, 120 Liberty Street, New York? On the label the analysis is given as proteids, 24 per cent.; butter fat, 12 per cent.; milk sugar, 54 per cent.; milk salts, 5 per cent., and moisture, 5 per cent.

Can you let me know whether this is approximately correct?

M. Howard Fussell, M.D., Philadelphia.

Answer.—Mammala is a dried milk powder manufactured by the Mammala Corporation. It may be considered as a partly skimmed milk, dried by a patented process, to which lactose (milk sugar) is added to make up for the deficient food units caused by the partial removal of the cream.

The Connecticut Agricultural Station has recently analyzed Mammala, with these results:

	Declared	(Basis 12% Solids) Calc.	Found	(Basis 12% Solids) Calc.
Net weight	Ounces 12.33	.....	Ounces 12.75	.....
	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Protein (N×6.38)	24.00	3.03	25.78	3.22
Fat	12.00	1.51	14.52	1.82
Ash	5.00	0.63	5.75	0.72
Lactose	54.00	6.83	49.90	6.24
Moisture	5.00	88.00	4.05	88.00
Starch	None		None	
Sucrose	None		None	

"The product exceeds the claim in protein, fat and ash. It is somewhat lower than the claim in lactose and moisture.

"Reduced to a basis comparable with cow's milk, 12 per cent. solids, it appears that the protein and ash are normal, the fat low and the milk sugar high. In other words, the claims as regards the composition are substantiated."

GOETSCH TEST FOR HYPERTHYROIDISM

To the Editor:—Can you give me details of a test for hyperthyroidism by the use of epinephrin hypodermically in conjunction with blood pressure? I think it is called by some such name as "Gatz" or "Levy Gatz" test.

Howard S. Allen, M.D., Woodbury, Conn.

Answer.—The test referred to is that called "skin reaction of Goetsch." Eight minims of a 1:1,000 solution of epinephrin are diluted with an equal quantity of sterile water and injected hypodermically into the arm. Immediately there is formed an area of blanching around the point of injection, and about the margin of this usually a red areola gradually shading off into the surrounding tissue. In about half an hour the center of the white area becomes bluish gray to lavender, and at the end of about one and a half to two hours the red areola takes on the bluish or lavender color, while that in the center disappears. This lavender areola remains for about four hours from the time of injection and is the most characteristic part of the test. Accompanying the local reaction may be increase in pulse rate with palpitation of the heart and an exaggeration of the tremor and nervous symptoms in general.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.
Hawaii: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.
Iowa: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
Massachusetts: Boston, Sept. 10-12. Sec., Dr. W. P. Bowers, Room 501-1 Beacon St., Boston.

Oklahoma April Examination

Dr. J. J. Williams, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, April 9-10, 1918. The examination covered 18 subjects and included 130 questions. An average of 70 per cent. was required to pass. Of the 19 candidates examined, 18, including 2 osteopaths, passed, and 1, an osteopath, failed. Sixteen candidates were licensed through reciprocity, and 5 candidates were granted osteopathic reciprocity licenses. Eight candidates, including 1 nongraduate, were granted reregistration licenses. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Northwestern University	(1906)	87
University of Michigan Homeo. Med. School	(1901)	91
University of Oklahoma (1918) 86, 87, 87, 87, 88, 88, 88, 89, 89, 90, 90, 91, 93.		
Meharry Medical College	(1917)	84

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Arkansas Industrial University	(1897)	Arkansas
University of Arkansas (1905) (1910) (1911) (1915)	(1917)	Arkansas
Atlanta College of Physicians and Surgeons	(1913)	Georgia
Kentucky School of Medicine of Louisville	(1893)	Missouri
	(1894)	Kentucky
Lincoln Medical College	(1902)	Nebraska
University of Nebraska	(1916)	Nebraska
Eclectic Medical Institute	(1898)	Tennessee
Ohio Medical University	(1901)	Ohio
University of Nashville	(1909)	Mississippi
University of Tennessee	(1885)	Kentucky
Southern Methodist University	(1913)	Texas

Arkansas May Examination

Dr. T. J. Stout, secretary of the Arkansas Board of Medical Examiners, reports the written examination held at Little Rock, May 14-15, 1918. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 40 candidates examined, 38 passed and 2 failed. Five candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
College of Physicians and Surg., Little Rock	(1909)	1
University of Arkansas	(1906) (1918, 20)	21
Atlanta School of Medicine	(1908)	1
Tulane University	(1915)	1
St. Louis University	(1918)	1
Meharry Medical College	(1918)	5
Memphis Hospital Medical College	(1899) (1903) (1912)	3
University of Tennessee	(1917) (1918, 3)	4
Vanderbilt University	(1890)	1
FAILED		
University of Arkansas	(1912)	1
Meharry Medical College	(1917)	1

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Tulane University	(1917)	Louisiana
Woman's Medical College of Pennsylvania	(1916)	Penna.
Meharry Medical College	(1917)	Tennessee
Memphis Hospital Medical College	(1913)	Texas
University of Tennessee	(1916)	Mississippi

Book Notices

AUTOINTOXICATION OR INTESTINAL TOXEMIA. By J. H. Kellogg, M.D., LL.D., F.A.C.S., Medical Director of the Battle Creek Sanitarium. Cloth. Price, $2.50. Pp. 342, with illustrations. Battle Creek, Michigan: The Modern Medicine Publishing Co., 1918.

This book begins with a discussion of the effect of bacteria on the body, their methods of propagation in the body, and the body's defense against them, following which is a discussion of the effect that various toxins developed in the intestine have on the body functions, and of methods of determining for examination of the feces the extent of damage being done. The treatment of these conditions and the changing of the intestinal flora is chiefly dietary and is discussed under the headings of "milk regimen, fruit regimen, fasting regimen," the antitoxic diet, and accessory treatment which includes chiefly massage, exercise and baths. In the milk regimen, the author advises the taking of large quantities of milk. He gives the milk at twenty-four feedings every half hour from 7 a. m. to 7:30 p. m. The amount depends on the capacity of the patient, varying from 3 to 6 quarts a day. It is taken in a definite quantity at a definite time, at alternate feedings, sour milk or that fermented by the Bulgarian bacillus being given. At two feedings, fresh fruit is given. Four times a day, bran and paraffin are given. The author believes that the normal human being should have three bowel movements a day at regular hours in order not to be constipated. This is achieved through the diet described.

Following the discussion of the milk regimen, he considers its application to various diseases in which he regards it especially beneficial. With the fruit regimen, the patient takes four meals a day of any kind of fresh fruit, 1 ounce of bran and 1 ounce of paraffin oil, better called liquid petrolatum. If the patient desires, a mixture of equal parts of oatmeal, cornmeal and sterilized bran may be made into a porridge and taken twice a day; if this cannot be taken, agar-agar may be used instead. The author then considers the conditions in which this diet is especially beneficial. The closing chapter is devoted to the subject of milk. It is entitled "Milk the Most Remarkable of Foods," and is in reality the best thought with which to leave the reader of the book. It is quite likely that in the proper cases, the methods advocated by Dr. Kellogg if correctly carried out will result satisfactorily.

The first sections of the book up to the beginning of the discussion on milk regimen are subject to the criticism that they are a little too technical for the average layman and not sufficiently technical for the average physician. Physicians who know of the work at Battle Creek and of the methods used by Dr. Kellogg will realize that these methods are peculiarly sanatorium methods and possibly will not be equally adaptable to general practice.

CHEMICAL PATHOLOGY. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph.D., M.D., Professor of Pathology in the University of Chicago. Third edition. Cloth. Price, $4.25 net. Pp. 707. Philadelphia: W. B. Saunders Company, 1918.

It is now three years since the second edition of this valuable book was issued; but in spite of the war the study of the chemical problem of disease has been so active that the additions to our knowledge made it necessary to reprint the book. The chapters on gout, immunologic specificness, anaphylaxis, icterus, acidosis, diabetes and uremia have been rewritten practically altogether, and new chapters or sections have been added on the Abderhalden reaction, chemical basis of growth, atrophy and the pressor basis. While the more recent publications of certain foreign countries have not been accessible, abstracts of most of them have been, so that it is fair to say that all or nearly all of the important literature concerned has been laid under contribution. The presentation is clear, logical and scholarly, and a judicial attitude is maintained throughout. As in previous editions, references are made to the more important publications bearing on the subjects discussed; hence the book is a reliable guide to the literature. The amount of industry bestowed on this work is very great indeed, and the result is a book the place of which can be taken by no other book in the English or any other language if one is seeking for a clear, competent and complete discussion of chemical pathology.

THE PRINCIPLES OF HYGIENE. A Practical Manual for Students, Physicians and Health Officers. By D. H. Bergey, A.M. M.D., Dr.P.H., Assistant Professor of Hygiene and Bacteriology, University of Pennsylvania. Sixth edition. Cloth. Price, $3.50 net. Pp. 543, with 63 illustrations. Philadelphia: W. B. Saunders Company, 1918.

The sixth edition of this well known manual continues to embody the features that have recommended it since its first publication. It is always difficult in such a work to keep the pages abreast of current progress. We note (page 117) that the discussion of the New York water supply is somewhat antiquated, no reference being made to the new Catskill system. Again we find (page 125) that the continuous process of sand filtration is said to be in use at Hamburg, although it has been many years since that city resorted to ground water sources. The latest report of the Committee of the American Public Health Association on Standard Methods of Water Examination does not seem to have been consulted in formulating the discussion of bacterial examination of water on pages 148 and 149. The paragraphs on Rocky Mountain spotted fever (pages 416-418) are quite out of date. A few instances of careless diction may be noted, although in general the author's meaning is clear and his treatment concise. On page 323 we note a curious use of *lazareth helfer* in place of the common English equivalent. A more thorough revision of the whole work would increase its usefulness.

MODERN UROLOGY IN ORIGINAL CONTRIBUTIONS BY AMERICAN AUTHORS. Edited by Hugh Cabot, M.D., F.A.C.S., Chief of the Genito-Urinary Department of the Massachusetts General Hospital. Volume I, General Considerations—Diseases of Penis and Urethra—Diseases of Scrotum and Testicle—Diseases of Prostate and Seminal Vesicles. Pp. 744, with 375 illustrations. Volume II. Diseases of the Bladder—Diseases of the Ureter—Diseases of the Kidney. Pp. 708, with 274 illustrations. Cloth. Price, $14. Philadelphia: Lea & Febiger, 1918.

These two volumes will be found useful and valuable as a standard reference work on the subject of urology. One only needs to look over the list of contributors to know that each subject is covered by an authority. It lacks the smoothness found in a work by a single author, but this is necessarily unavoidable in a correlated set of monographs. For this reason it is most valuable as a reference work for those interested in urology, and not as a textbook for the student. The numerous engravings and plates are very instructive, and the bibliographies at the end of each chapter are extremely useful. In the preface the editor calls attention to the importance and rapid advancement of urology, and states that this specialty stands today in America, at least on a par with the position it has made for itself abroad. One can safely state that the work accomplishes its intention, namely, that "it gives articular expression to American urology."

SURGEON GROW, AN AMERICAN IN THE RUSSIAN FIGHTING. By Malcolm C. Grow. Cloth. Price, $1.50 net. Pp. 304, with illustrations. New York: Frederick A. Stokes Company, 1918.

Dr. Malcolm C. Grow went to Russia in 1915 to work for the Red Cross. He became a lieutenant-colonel [corresponding in rank to major in our army] in the medical department of the Russian army, and was christened in true Russian style Malcolm Alvaovitch Grow. He is now a major in our own Medical Reserve Corps. Dr. Grow's book is not a description of medical organization or a treatise on the care of the wounded; it is a thrilling account of adventure, of attack and retreat, of betrayal through German intrigue, of the spirit of a simple and long suffering peasant people under most adverse conditions. At the same time trench conditions are pictured with much of what Irvin Cobb calls "the essence of the trenches," a rather grim, yet high-spirited humor. Dr. Grow was several times wounded, and received the medal of St. George from the hands of the Grand Duke. While the book was not written especially for them, physicians will find this experience of a surgeon in Russia of special interest at the present time.

Medicolegal

Liability Under Agreement to Cure

(Frankel v. Wolper (N. Y.), 169 N. Y. Supp. 15)

The Supreme Court of New York, Appellate Division, Second Department, affirms a judgment dismissing the complaint in this case on the ground that it did not declare on contract, but was for malpractice and was on that account barred by a statute of limitations, whether the cause of action arose from lack of requisite skill or negligent exercise of it. The complaint alleged in effect representations by the defendant of skill and carefulness in his calling; the plaintiff's reliance thereon in entering into a contract with the defendant "to attend to and cure her of" her malady; that in violation of the contract the defendant used neither the agreed care and diligence in the exercise of his skill and application of his learning in treating the plaintiff, nor his best judgment, nor the approved methods, and lanced the plaintiff's affected breast dilatorily and improperly, improperly drained it, made too frequent changes of bandages, and did not properly sterilize the bandages and instruments, etc., and it might be inferred from the complaint that the plaintiff's physical condition was affected permanently (1) by the defendant's negligent treatment; (2) by operations by others, necessitated by the defendant's failure to cure her; (3) by the continuance of her malady, and that she had expended sums of money in endeavoring to be cured.

The defendant, the court says, would not be liable on his agreement to cure for the plaintiff's pains and disability resulting from the conditions to be cured, nor for pains and disabilities caused by the defendant's ignorance or lack of skill, nor for pains and disabilities caused by subsequent operations to cure her of her malady, or to avert the consequences of the defendant's lack of skill or failure to perform his contract, nor expenses to alleviate any such pains and disabilities. The contract to cure was not that the defendant would, on failure, pay the damages resulting from her malady continuing, or for the results of his lack of skill or ignorance, or for the physical consequences of treatment by other physicians necessitated by her condition. The thing he undertook was to cure her. That did, indeed, involve the elimination of the condition that begot suffering and disability. But a physician cannot be held responsible for suffering from a cause which he agrees to end, but does not, unless he is guilty of malpractice. He must have skill, care and judgment, and use them; and if he fail to use them, and pain results therefrom, whether there be or not ultimate cure, he is liable. That culpability results from the duty the law attaches to the undertaking.

The court would say, also, that where a physician, with whatever prudence, agrees that his treatment will cure, and it does not, the patient is absolved from payment, may recover advances, may recover expenditures necessitated for nurses and medicines, and maybe for something else. But such were not the damages stated here. If the complaint otherwise permitted a conclusion that the action was on contract, the misstatement of damages need not disturb it. But here the damages alleged were unsuited to an action on contract, and helped to characterize the complaint as one for malpractice and negligence.

Valid Resolution to Enforce Vaccination

(Staffei et al. v. San Antonio School Board of Education et al. (Tex.), 201 S. W. R. 413)

The Court of Civil Appeals of Texas upholds, by affirming a decree that denied the plaintiffs a temporary injunction against the enforcement of, that portion of a resolution of the board of education which instructed the superintendents and teachers of the schools of the San Antonio independent school district to refuse admission to the schools of said district, and to prevent further attendance thereat, of children not complying with the vaccination ordinance of the city of San Antonio. The particular part of the city vaccination ordinance referred to was:

> No child or other person shall be permitted to attend any of the public schools, or any place of education within this city, unless such child or other person shall first present a certificate from some duly qualified physician to the city physician that such child or other person has been successfully vaccinated within six years preceding the time at which such child or other person desires to attend school.

The court holds that the resolution was authorized by the San Antonio independent school district charter, which provided that the management and control of the said school district should be vested in nine trustees, who should be called the San Antonio board of education, and, in another section, said, "The board shall establish, manage and control all public free schools within said district." By these charter provisions the legislature, so far as it could, delegated to the San Antonio board of education the authority to control and manage the public schools in San Antonio. The words "manage and control" conferred the authority on the board to prescribe rules by resolution for the qualifications of children for admission into the San Antonio public free schools. This authority to prescribe the qualifications included the authority to prescribe vaccination as a condition precedent, provided, of course, the requirement was not unreasonable. Nor was that charter provision rendered ineffective by the constitutional guaranty that no citizen of the state should be deprived of privileges except by the due course of the law of the land.

The board of education by its resolution did not undertake or intend to compel the children to be vaccinated. It claimed no such power. The board undertook only to control the schools under its jurisdiction. The resolution did not prevent the children from attending the schools; it was their own consciences, beliefs and convictions that did. Furthermore, the privilege of having children admitted to the public free schools is a creation of the statute, and can be changed by statute.

The argument that the resolution of the board excluded the unvaccinated children from the public free schools in San Antonio and subjected them and their parents to the pains and penalties of the compulsory education law had no bearing on the case before the court, and would not be discussed further than to reply that the control of the schools in San Antonio was given by law to the San Antonio board of education, and not to individual parents, no matter how correct their consciences, convictions, faith and religious beliefs might be. The court may add that such a regulation has been held a valid defense to a prosecution under a compulsory education law. *State* v. *Turney*, 31 Ohio Cir. Ct. R. 222. However, the court must not be understood as passing on any such question here.

In this case there was no finding of facts. No evidence was heard. But the sworn answer of the defendants alleged that there was smallpox in the city and within the school district; that there was danger of its spreading, and that the best way to prevent this was to vaccinate the children attending the public schools, etc. These allegations warranted holding the resolution a reasonable exercise of power, and justified denying the temporary injunction.

Loss of Lens of Eye Not Loss of Eye

(Frings v. Pierce-Arrow Motorcar Co. (N. Y.), 169 N. Y. Supp. 309)

The Supreme Court of New York, Appellate Division, Third Department, in answer to a question certified by the state industrial commission, holds that the loss of the lens of an eye is not the loss of an eye, within the contemplation of the workmen's compensation law. The court says that, unquestionably, when the lens of the eye was destroyed, the use of the eye, unaided, was lost. It was only by providing an artificial lens outside the eye that the image could be so thrown on the retina as to restore the sight. The retina was not destroyed, and through the use of an artificial lens the eye, so far as its use alone was concerned, could fulfil the natural function of an eye. The claimant had permanently lost the use of the eye, when so supplemented, to the extent only of using it in conjunction with the other eye,

which he could not do, owing to the lack of coordination of images. Should he lose the other eye, he would be able, using the injured eye, aided by a lens, fully to perform his duties.

Using Roentgenogram of Normal Foot for Comparison

(Bruce v. Western Pipe & Steel Co. (Calif.), 169 Pac. R. 660)

The Supreme Court of California says that the plaintiff in this personal injury case was allowed to introduce in evidence a roentgen-ray picture of a normal foot, for illustration, and to enable the jury to compare the same with the condition of the plaintiff's foot after the injury. This was not error. The fact that the roentgenogram was taken in the absence of the defendant, or without the knowledge of the latter, did not of necessity affect the propriety of this evidence. It was not claimed that the picture of the normal foot was inaccurate.

Society Proceedings

COMING MEETINGS

Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
Colorado State Medical Society, Estes Park, Sept. 9-11.
Indiana State Medical Association, Indianapolis, Sept. 25-27.
Kentucky State Medical Association, Louisville, Sept. 3-6.
Minnesota State Medical Association, Duluth, Aug. 28-30.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
Ohio State Medical Association, Columbus, Oct. 1-3.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Tri-State District Medical Society, Madison, Wis., Aug. 20-22.
Utah State Medical Association, Salt Lake City, Sept. 10-11.
West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Roentgenology, New York

June, 1918, 5, No. 6

1 Apparatus for Quick and Accurate Localization on Screen. J. M. Davidson, London, England.—p. 275.
2 Roentgenology in Warfare. J. H. Edwards, Birmingham, England.—p. 280.
3 Instrument for Rapid Fluoroscopic Foreign Body Localization by Combined Parallax and Double Ring Methods. E. S. Blaine, New York.—p. 288.
4 Appendix with Especial Reference to Peristalsis. M. J. Hubeny, Chicago.—p. 293.
5 Postroentgen Treatment of Carcinoma of Breast. R. H. Boggs, Pittsburgh.—p. 301.
6 An Inexpensive Head Vise. C. C. Thomas, Ann Arbor, Mich. —p. 304.

Archives of Internal Medicine, Chicago

July, 1918, 22, No. 1

7 *Blood in Shock. C. C. Guthrie. Pittsburgh.—p. 1.
8 *Ligation of Coronary Arteries with Electrocardiographic Study. F. M. Smith, Chicago.—p. 8.
9 *Clinical Registration of Cardiac Murmurs by Direct Method. C. J. Wiggers, New York.—p. 28.
10 *Prevention of Simple Goiter in Man. O. P. Kimball and D. Marine, Cleveland.—p. 41.
11 *Clinical Significance of Abnormally Wide Ventricular Deviation in Electrocardiogram. S. Neuhof, New York.—p. 45.
12 Value of Tests of Kidney Function. L. F. Frissell and K. M. Vogel, New York.—p. 56.
13 *Studies on Renal Function During and Immediately Following Some of Acute Infectious Diseases. C. Frothingham, Boston. —p. 74.
14 Alkaptonuria; Report of Case. S. S. Schochet, Chicago.—p. 82.
15 *Occlusion of Entire Inferior Vena Cava by Hypernephroma, with Thrombosis of Hepatic Vein and Its Branches. V. C. Jacobson and E. W. Goodpasture, Boston.—p. 86.
16 *Alimentary Renal Glycosuria; Report of Case. K. Goto, New York.—p. 96.
17 Gastric Lesions Observed in Experimental Bacteremia. J. W. McMeans, Pittsburgh.—p. 114.

7. **Blood in Shock.**—In an investigation of experimental shock in dogs, the blood was studied by Guthrie to determine if such alterations occurred in the type of shock induced, and if there was a causal relation between blood change and shock. In the condition investigated, alterations in blood volume causatively were unimportant. Evidence of entrance of liquid into the blood was obtained.

8. **Ligation of Coronary Arteries.**—This article is based on a study of sixty-six dogs in which known myocardial lesions had been produced by the ligation of definite branches of the coronary arteries of the heart. The mortality following the ligation of the ramus descendens anterior sinister was 9 per cent. Where in addition one or more small branches of the ramus circumflexus sinister were ligated the mortality was increased to 50 per cent. This was about the same as that from the ligation of either the main trunk of the ramus circumflexus sinister of the right coronary artery, which was 57 per cent. and 54 per cent., respectively. The mortality following the ligation of the first lateral branch of the ramus descendens anterior and either the large anterior or posterior descending branch of the ramus circumflexus sinister was 37.5 per cent. These figures approached those obtained from the ligation of the ramus circumflexus sinister or the right coronary artery, yet the area supplied with blood by the last named arteries far exceeds that supplied by the former. Even though the area supplied with blood in the former is less, the papillary muscles are involved, which perhaps may be the explanation for the high death rate. One fact, strikingly brought out, was that where a lesion was brought about by ligation of the left coronary artery, the softening or fibrosis involved to a much greater extent the endocardial and subendocardial structures than the subpericardial or the body proper of the myocardium. This was true in two cases in man with coronary artery occlusion which Smith and his associates had the opportunity of observing while the work was going on.

As to anastomosis, these observations led to the belief that while the degree of anastomosis is variable, there must often be a fairly free communication between the branches of the right and left arteries or between the smaller branches of the same artery. Otherwise it is difficult to explain the survival of dogs where extensive ligation has been made, the variations in extent of the lesions produced by the obstruction of the same vessel and the comparatively small size of the lesion which frequently results from the occlusion of a large artery. Four dogs in which the ramus circumflexus sinister was ligated, developed, within forty minutes, tachycardia which ended in ventricular fibrillation and death. Ventricular fibrillation was observed in six cases. In four instances this abnormal rhythm was preceded by tachycardia and in the remaining two by auricular fibrillation and auricular flutter. Ventricular fibrillation in the dog invariably ended in death. The early exaggeration of the T-wave, its marked negative drop below the line within twenty-four hours and its more gradual return to its positive position and its final iso-electric or negative location were so characteristic in dogs watched for several days, that similar changes in the wave in man might reasonably be supposed to be due to similar lesions. In fact, one case in man, which will be reported later, was observed in which a clinical diagnosis of coronary thrombosis was made which was verified later at necropsy. The T-wave of the electrocardiogram of the patient ran a course similar to that of the dogs previously described. In other cases believed to be coronary thrombosis similar changes in the electrocardiogram have been seen but no verification of the diagnosis has been made, the patients either living or no necropsy having been obtained.

9. **Registration of Cardiac Murmurs by Direct Method.**—According to Wiggers a presystolic murmur may accompany a variety of cardiac conditions. It is most clearly recognized in cases of mitral stenosis in which the auricle continues to contract regularly and efficiently. In such cases the murmurs increase in intensity and end in a characteristic snapping first sound from which alone the diagnosis may sometimes be made. The vibrations responsible for this murmur

may be felt as a thrill on palpation and end in a characteristic systolic shock. Presystolic murmurs may be present in double mitral lesions in which insufficiency predominates. In such cases the murmur does not necessarily end in the typical sharp first sound, but is separated from it by a short interval. Finally, presystolic murmurs frequently accompany aortic insufficiency. They may be separated from the diastolic murmur by an interval, but not necessarily. Systolic murmurs of soft, blowing character most frequently accompany mitral insufficiency. They rarely replace the first sound entirely, although the character of this sound may be altered. Systolic murmurs are also commonly associated with the diastolic murmurs in aortic insufficiency. Associated mitral or tricuspid lesions or aortic stenosis are, no doubt, sometimes responsible for this systolic murmur. It is possible, also, that the disturbed dynamic pressure relations between the ventricles and aorta in a pure insufficiency may in itself be sufficient to account for the systolic murmur.

Diastolic murmurs may be described as early diastolic, middiastolic and late diastolic. The diastolic murmurs of aortic insufficiency usually occupy the early phase of diastole and may entirely replace the second sound. They may, however, in undoubted cases extend well into the diastolic period. Musical diastolic murmurs follow the second sound and are early diastolic in time. In no case was such a murmur found to extend into the late diastolic period. Diastolic murmurs frequently occur in mitral lesions when the auricles are fibrillating. The murmur then varies from cycle to cycle and may fill the entire period of diastole. They may occur also in mitral stenosis while the auricle is regularly contracting but the rhythm of the heart is slow. In complex mitral lesions systolic and diastolic murmurs may be so prolonged that they merge, thereby obliterating the intervening first sound as an entity.

10. **Prevention of Simple Goiter.**—It is claimed by Kimball and Marine that simple goiter can be prevented by the administration of small amounts of iodin. One third of the cases of uncomplicated simple goiter disappear or are markedly decreased by the use of a small amount of iodin, given internally. There is no danger of producing a toxic condition. A very small proportion of the cases (at most 0.5 per cent.) may develop an iodid rash, which promptly clears up on stopping the treatment.

11. **Ventricular Deviation in Electrocardiogram.**—An arbitrary standard of 0.07 of a second was fixed by Neuhof as representing the lower limit of abnormally wide ventricular deviations which were otherwise normal in form and contour. Thus standardized, an abnormally wide R was found in a series of patients, all of whom, with two exceptions, showed evidence of marked myocarditis. These two were cases of rheumatic aortic disease, with extreme ventricular hypertrophy. The presence of the wide R seemed to indicate, though its absence did not exclude, myocarditis. It had no relation to the height of the R, the pulse rapidity, the cardiac rhythm, or to the underlying disease producing the myocarditis. In some of the cases, severe decompensation was present; in others, it was absent. Though no definite statement of the fundamental cause of the abnormally long duration of the R phase can be offered, its frequent association with myocarditis would make it appear possible that this lesion acted as a direct hindrance to the proper normal, rapid propagation of the wave of electrical excitation through the ventricular musculature.

13. **Studies on Renal Function.**—Frothingham concludes from his studies that these tests for renal function, namely, the phenolsulphonephthalein elimination, the urea nitrogen in the blood, and the index of urea elimination, failed to show consistent evidence of impaired renal function during the course of or following acute infections in which the clinical picture or the urinary examination by the older methods showed nothing suggestive of acute nephritis.

15. **Occlusion of Inferior Vena Cava.**—Occlusion of the inferior vena cava by new growth (*Geschwulstthrombose*) is rare, up to 1911 there having been but forty-three cases accurately described. In thirteen of these the growth reached as far as the right auricle or actually invaded it. In only one instance was the entire cava from iliacs to right auricle filled. Since then several other instances of obstruction by intravascular new growth have been reported, two of which showed occlusion from the level of the renal veins with tumor projecting into the right auricle. In one case the tumor tissue completely filled the inferior vena cava and extended into the right auricle. The case reported by Jacobson and Goodpasture is one in which a renal hypernephroma extended from the kidney into the left renal vein, traversed the inferior vena cava below as far as the iliac bifurcation and grew upward into the right auricle and right ventricle causing mechanical embarrassment to the tricuspid valve. The orifices of the hepatic veins were plugged with tumor, and there was acute central necrosis of the liver from thrombosis of the hepatic vein and its branches. Sudden enlargement of the liver was accompanied by the onset of acidosis, which persisted until the death of the patient twenty-four hours later. Where there are already signs of obstruction of the inferior vena cava, sudden enlargement of the liver coincident with the onset of acidosis is probably indicative of acute thrombosis of the hepatic veins.

16. **Alimentary Renal Glycosuria.**—After the ingestion of more than 34 gm. starch, the urine in Goto's case showed sugar without any hyperglycemia; after 100 gm. starch the urine contained 0.25 gm. sugar, while after 200 gm. starch the urine showed only 0.17 gm. sugar; the maximum of blood sugar was 0.115 per cent. after ingestion of 100 gm. starch and 0.145 per cent. after 200 gm. starch. Furthermore, after the ingestion of 100 gm. glucose, more sugar was excreted in the urine than when 200 gm. were taken, while the blood sugar was higher and remained higher for a longer period after 200 gm. glucose was ingested than after 100 gm. When levulose was given it was excreted as levulose itself, not as glucose.

Arkansas Medical Society Journal, Little Rock

July, 1918, **15**, No. 2

18 Opportunities Offered to Arkansas Young Men by State Medical School. A. R. Stover, Little Rock.—p. 29.
19 Seriousness of Obstetrics and Some of Pitfalls to Be Avoided. J. P. Lunt, Leonard.—p. 33.

Boston Medical and Surgical Journal

July 18, 1918, **179**, No. 3

20 Shell-Shock and After. E. E. Southard, Boston.—p. 73.
21 Organization in Hospital Dietetics. F. H. McCrudden, Boston.—p. 93.
22 *Experimental Scurvy in Guinea-Pig. W. C. Rappleye, Foxboro.—p. 98.
23 Intrapartum Rupture of Uterus and Bladder; Recovery. Subsequent Closure of Vesical Fistula. G. T. Tyler, Jr., Greenville, S. C.—p. 99.
24 Case of Fractured Pelvis with Rupture of Bladder in Infant Under Two Years, with Recovery. R. W. Angevine, Rochester, N. Y.—p. 100.

22. **Experimental Scurvy in Guinea-Pig.**—A number of pigs were kept on a diet of oats and milk, and the majority of them developed evidences of the disease in four to six weeks. At necropsy of animals dying of the scurvy so produced, the cecum of each animal was found distended with pale, pasty feces, and the extremities showed the usual signs of scurvy. Other animals were placed on a similar diet and after the development of the disease, were given liquid petrolatum or phenolphthalein, with undoubted improvement in the signs of scurvy. In no case, however, was it possible to restore normal health to the animals, though the small number of pigs so treated prevents attaching any significance to the adverse results. And in all probability the administration was begun at too late a stage in the disease to reasonably expect recovery. That there was improvement, however, was evident. Knowing that the disease may develop on a diet which one might expect would yield bulky feces (such as oats and dry cabbage), a larger group of animals was placed on a diet of oats and hay, and these animals developed scurvy in from four to six weeks, as expected. Necropsies done on animals dying from scurvy developed on this diet showed well-formed feces in the lower colon, and firm but not necessarily impacted feces in the cecum. The gums, extremities

and condition of nutrition were, to all appearances, similar to the conditions found in animals necropsied after fatal results on the diet of oats and milk. The feces were dark colored, and the amount of putrefaction was much less than that found in animals which had been on the diet yielding feces of less bulk. The amount of distention was also much less; the appearance of the cecum, colon and ileum was not especially abnormal. The consistence of the stools altered but little during the period of observation. Administration of laxatives after the onset of signs of scurvy benefited these animals also.

It is not evident why, if scurvy in the guinea-pig is due primarily to impaction of feces in the delicate cecum, the pigs on a diet of oats and hay should develop the disease, when the degree of impaction is at least much less than that seen in animals on a diet yielding pasty feces, and the character of the feces not especially abnormal. It is obvious that the poorly balanced diet leads to malnutrition, and it may be that absorption of toxins and bacteria from the intestinal tract may be attributed more directly to that factor, which probably involves the intestinal mucosa quite as much as other tissues. The presumption that a certain degree of the inspissation of the feces is due to a late or terminal feature of the disease seems to be borne out by the fact that the feces of animals killed before the very last stage of the disease are less abnormal than those found in animals at death. During the last stage of the disease, the animals are unable to move about and to secure water, and it is possible that a certain, though probably a small, degree of the fecal condition is due to this factor. Blood cultures made on animals dying from or killed during the study were uniformly sterile. The histobacteriologic studies of the tissues have not been done as yet. The rabbits in four other pens similarly arranged, and which were on a general diet, did not do this. Whether the calcium in the whitewash had anything to do with the prevention of scurvy or malnutrition was not determined.

Bulletin of Johns Hopkins Hospital, Baltimore

July, 1918, **29**, No. 329

25 Preparation of U. S. Army Triple Typhoid Vaccine. C. G. Snow. —p. 157.
26 *Influence of Menstruation on Acidosis in Diabetes Mellitus; Report of Case. G. A. Harrop, Jr., and H. O. Mosenthal, Baltimore. —p. 161.
27 *Case of Colloid Degeneration of Skin with Unusual Histological Feature. L. W. Ketron, Baltimore.—p. 163.
28 *Sarcoma of Uterus Arising from Endometrium. L. Brady.—p. 164.
29 Pharmacologic Appreciation of Shapespeare's Hamlet; Instillation of Poisons into Ear. D. I. Macht, Baltimore.—p. 165.

26. **Influence of Menstruation on Acidosis in Diabetes Mellitus.**—A girl, aged 18, entered the hospital suffering from a very severe type of diabetes mellitus, accompanied by a marked degree of acidosis. The urine could be rendered sugar-free only temporarily by means of starvation; the acid substances in the urine were fairly high, the percentage of ammonia nitrogen of the total urinary nitrogen was well above the normal, and the carbon dioxid tension of the alveolar air was low, in spite of large amounts of bicarbonate of soda administered. The patient was thin and weak, but exhibited none of the distressing subjective symptoms that are often associated with marked acidosis and impending diabetic coma. The gravity of the situation was realized, and every effort was made to improve the girl's condition. At the end of one month, the acidosis had somewhat diminished, but the tolerance for carbohydrates had not increased at all. She was evidently one of the rare but unfortunate cases of diabetes mellitus which are not relieved by the starvation treatment. With the onset of the menstrual period, the picture changed completely. On that day she complained of abdominal pain and refused food. At 7 p. m. a change in the character of the breathing with increasing drowsiness, was noticed, and at 10 p. m. there was well marked hyperpnea; she could scarcely be aroused; there was marked involuntary twitching of the facial muscles, and the carbon dioxid tension of the alveolar air was 20 mm.

The next day the symptoms remained unchanged. On the third day the conditions improved somewhat and on the fourth day all the symptoms which had manifested themselves at the time menstruation began had disappeared. The patient was treated with large doses of sodium bicarbonate by the mouth, rectum, and intravenously, and by starvation. The effects of this therapy were satisfactory. The tests during this period, which may be regarded as one of diabetic coma, show no appreciable increase in the severity of the acidosis over that of one month previously when there were no subjective symptoms of acidosis. There is perhaps a slight tendency toward a rise in the amount of acid substances and ammonia, but no significant change occurred. The alveolar air showed a lower tension of carbon dioxid on the first day of menstruation than had previously been recorded, but here again the difference was only slight. It may, therefore, be concluded that the process of menstruation in some manner affected the body so that it was less resistant to the influences of the acid bodies and that diabetic coma resulted.

There are several other facts that point to the profound effects which were produced by the menstrual process. During the period the glycosuria and the quantity of nitrogen in the urine were both much increased. These phenomena have often been noted in so-called cases of acute diabetes. When menstruation had ceased, it was apparent that some permanent damage to the carbohydrate metabolism had occurred. The amounts of glucose excreted were somewhat higher than before, and the acidosis, as indicated by the acetonuria and the quantity of ammonia in the urine, was distinctly more pronounced. In this case of diabetes mellitus it seems justified to conclude that the menstruation was accompanied by an increase in the acidosis. The symptoms became more marked with each successive period until fatal coma occurred. The second menstrual period set in four weeks after the first. The girl was very drowsy and nauseated. Deep coma came on during the course of the day, and on the following day several general convulsions occurred. There was evidently typical air hunger. Death came about thirty-six hours after the onset of the diabetic coma, and on the third day following the beginning of the menstrual period.

27. **Colloid Degeneration of Skin.**—A typical case is reported by Ketron of the rare condition of colloid degeneration of the skin. In the histologic study, peculiar cells with granular protoplasm were found embedded in the colloid blocks. Ketron believes them to be macrophages which have phagocytosed the colloid material, because of its foreign body reaction.

28. **Sarcoma of Uterus Arising from Endometrium.**—A woman entered the hospital worried because of a lump in her breast which turns out to be, on operation, a benign tumor, but gave little attention to the recurrence of vaginal bleeding, one and a half years after the menopause, which scrapings demonstrated to be due to a very malignant growth. The case is interesting because apparently it is not a sarcoma starting from a malignant degeneration of a fibroma, as is usually the case, but one arising from the connective tissue of the endometrium. The tumor cells arose from the region where one finds the remains of the uterine glands.

Georgia Medical Association Journal, Augusta

July, 1918, **8**, No. 3

30 Value of Commission for Study and Control of Cancer. J. L. Campbell, Atlanta.—p. 45.
31 Control of Cancer. G. R. White, Savannah.—p. 47.
32 Plea for Conservation of Human Milk. W. L. Funkhouser, Atlanta.—p. 52.
33 Babies, Malaria and Quinin. W. A. Mulherin, Augusta.—p. 56.
34 Diatomaceous Earth, New Wound Dressing and Drainage Method. St. J. B. Graham, Atlanta.—p. 61.

Indiana State Medical Association Journal, Fort Wayne

July, 1918, **11**, No. 7

35 Survey of Trachoma Situation in Indianapolis. B. J. Larkin, Indianapolis.—p. 265.
36 Plea for More Conservative Obstetrics. F. E. Abbett, Indianapolis. —p. 270.
37 Focal Infection of Mouth and Accessory Sinuses in Relation to Ophthalmic Inflammations. E. E. Holland, Richmond.—p. 274.

Journal of Infectious Diseases, Chicago

July, 1918, **23**, No. 1

38 *Study of Diphtheroid Organisms; Special Reference to Hodgkin's Disease. F. Eberson, New York.—p. 1.
39 Differentiation of B. Coli and B. Aerogenes on Simplified Eosin-Methylene Blue Agar. M. Levine, Iowa City, Iowa.—p. 43.
40 Efficacy of Various Agar-Dye-Mediums Recommended for Isolation of Typhoid and Dysentery Bacilli from Feces. K. F. Meyer and J. E. Stickel, San Francisco.—p. 48.
41 Peptic and Tryptic Digestion Products as Inexpensive Culture Mediums for Routine Bacteriologic Work. J. E. Stickel and K. F. Meyer, San Francisco.—p. 68.
42 Relative Viability of B. Coli and B. Aerogenes Types in Water. C. E. A. Winslow and B. Cohen, New Haven, Conn.—p. 82.
43 Distribution of B. Coli and B. Aerogenes Types in Polluted and Unpolluted Water. C. E. A. Winslow and B. Cohen, New Haven, Conn.—p. 90.
44 Thermolability of So-Called Syphilitic Antibody. E. H. Ruediger, Bismarck, N. D.—p. 102.

38. **Diphtheroid Organisms.**—A tentative classification is offered by Eberson with a view toward grouping prominent biologic characters. Nine distinct groups of diphtheroids are outlined with a type species for each group and corresponding subspecies. The diphtheroids associated with Hodgkin's disease have been studied. It has been shown that neither the source nor the cultural characters serve to distinguish the supposed cause of Hodgkin's disease from numerous saprophytic diphtheroids. By means of complement fixation tests the conclusion is reached that the cause of this disease is not the organism decribed by numerous workers. Agglutinin absorption studies indicate more clearly the relationship which exists between certain members of the diphtheroid group of bacteria. The results are correlated in the main with complement fixation.

Journal of Nervous and Mental Disease, Lancaster, Pa.

June, 1918, **47**, No. 6

45 Psychoneurotic Syndrome of Hyperthyroidism. M. S. Woodbury, Clifton Springs, N. Y.—p. 401.
46 Melancholia. S. Kuh, Chicago.—p. 411.
47 Spinal Tumors: Analysis of Three Hundred and Thirty Collected Cases. C. R. Steinke, Akron, Ohio.—p. 418.
48 Family Spastic Paralysis. G. H. Williams, Columbus.—p. 427.
49 Diminutive Visual Hallucinations in Middle Aged Women During Involutional Period. A. Gordon, Philadelphia.—p. 434.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

June, 1918, **11**, No. 5

50 *Distribution of Gold in Animal Tissues: Biochemistry and Chemotherapy of Tuberculosis. L. M. DeWitt, S. M. Cadwell and G. Leavell, Chicago.—p. 357.
51 Experimental Study of Venom of Manchurian Scorpion. S. Kubota.—p. 379.
52 *Relation Between Chemical Structure of Opium Alkaloids and Their Physiologic Action on Smooth Muscle: Pharmacologic and Therapeutic Study of Some Benzyl Esters. D. I. Macht, Baltimore.—p. 389.

50. **Distribution of Gold in Animal Tissues.**—In a recent experiment on the chemotherapy of tuberculosis, gold in the form of various salts was administered to a considerable number of guinea-pigs, and the organs and tissues of the animals were subsequently analyzed quantitatively to determine the distribution of that metal. Gold differs somewhat from other metals in its distribution in the animal body. Copper, zinc, arsenic, tin, antimony and mercury are generally deposited in the liver much more than in other organs. The kidney may in some cases contain as much and occasionally even more in proportion to its weight than the liver. The spleen usually contains none or mere traces. These metals are excreted for the most part through the gastro-intestinal tract. Gold seems to select the spleen by preference, since the amount per gram weight or the gold concentration in the spleen is in most cases much greater than in the liver. Sometimes the kidney and sometimes the liver comes second in gold concentration. About one half of the gold administered was recovered from the urine and feces within seven days after a single injection and in two months during which weekly injections were given and all the urine and feces were saved; more is excreted through the urine than through the feces, at least in the earlier part of the treatment. The gold salts used are readily absorbed after subcutaneous injection, no more remaining in the subcutaneous tissues around the point of injection than in other parts of the body. Gold salts are quickly taken up from the blood after intracardiac injection and usually no gold or a mere trace is found in the circulating blood twenty-four hours after the injection. Two to four hours after the last injection no gold was found in the clear serum, although a considerable amount was recovered from the layer of blood cells of the centrifuged blood. No gold was found in the brain. The amount of gold administered, the duration of treatment and the time since the last dose seem to exert no constant or consistent influence on either the total or proportional gold content of the animal organs.

52. **Action of Opium Alkaloids on Smooth Muscle.**—From the experiments described by Macht, it is evident that in respect to their physiologic action on the rhythmic contractions and tonicity of smooth muscle from various organs, the opium alkaloids can be divided sharply into two classes: the morphin group on the one hand and the papaverin group on the other. It is further shown that the stimulating or pressor effect of the morphin or the pyridin-phenanthrene group seems to reside in the pyridin or piperidin portion of their molecules. The seemingly anomalous action of peronin or benzyl morphin is explained by the depressor effect of the benzyl grouping, as shown by the action of all the members of the papaverin group. The inhibitory and tonus lowering action of this papaverin or benzyl-isoquinolin group of alkaloids has been pretty conclusively shown to reside in the benzyl portion of their molecules. It is interesting to note that the inhibitory action of the papaverin group is due to the presence of the benzyl nucleus and not to an oxidized, for instance, acidic radicle; for it was found that neither sodium benzoate nor sodium meconate containing monacid aromatic radicles, nor sodium phthalate containing a diacid aromatic radicle produced inhibition. On the other hand, benzamide containing two benzyl rings produced prompt paralysis of the contractions.

The difference in the effect on smooth muscle between the two groups of opium alkaloids is of practical importance in the treatment of all kinds of "colicky" pains or pains due to spasmodic contractions of smooth muscle viscera. It is a well established empirical clinical observation that morphin, in ordinary doses, is not efficient in relieving that colic due to ureteral spasm or spasm of the gallbladder. The explanation of this fact in the light of Macht's investigation is obvious. While morphin acts as an analgesic through its action on the brain, its peripheral effect on the smooth muscle of the ureter or the gallbladder or the uterus or any other smooth muscle viscus is to increase its spasm or tonic contractions. An exhibition of papaverin in such a case is often very efficient in the relaxing the spasm of the smooth muscle and thus alleviating the colic. The rational therapeutic procedure in all such cases would be to administer one of the benzyl-isoquinolin alkaloids, of which papaverin is the most efficient, or still better to give a combination of morphin with benzyl-isoquinolin alkaloids such as pantopium which will give a powerful central analgesic effect on the one hand and will relax the peripheral spasm at the same time on the other.

The difference in the pharmacologic action between the morphin and papaverin groups of alkaloids is also of practical interest in the treatment of diarrheas. It is well known that opium is more efficient in checking diarrhea than the amount of morphin which it contains would be if given alone. The explanation of this action does not lie primarily in the presence of the inert constituents of crude opium but is due to the inhibitory effect of the benzyl-isoquinolin constituents in the opium.

Medical Record, New York

July 20, 1918, **94**, No. 3

53 Value of Dichloramin-T Chlorcosane Solution (Dakin-Dunham) in Treatment of Infections of Upper Air Passages. D. B. Delavan, New York.—p. 89.
54 Shell Shock and Other War Neuroses. E. L. Hunt, New York.—p. 91.
55 Medical Treatment of Exophthalmic Goiter. J. F. Rice, Buffalo.—p. 97.

56 Experimental Test with Copper and Potassium Cyanid in Tuberculosis. M. J. Fine, Newark, N. J.—p. 99.
57 Stigmata of Abrams in Hereditary Syphilis. A. Abrams, San Francisco.—p. 101.
58 Blood Supply of Uterus—with Special Reference to Operation of Vaginal Hysterectomy. H. Crutcher, Tularosa, N. M.—p. 103.
59 Testing Facts and Theories of Heredity. C. L. Redfield, Chicago. —p. 105.

Nebraska State Medical Journal, Norfolk

July, 1918, **3**, No. 7

60 Correction of Nasal Deformities by Transplantation of Bone. J. M. Banister, Omaha.—p. 201.
61 Public Health Service for Rural District. F. W. Buckley, Beatrice.—p. 203.
62 Treatment of Diabetes. F. A. McGrew, Comstock.—p. 206.
63 Mechanical Ileus Due to Twisted Pedicle of Cystic Ovary. P. H. Salter, Norfolk.—p. 210.
64 Actual Benefit to Surgery Derived from Present War. R. R. Hollister, Omaha.—p. 211.

New York Medical Journal

July 20, 1918, **108**, No. 3

65 Blood and Soul in Ancient Belief. J. Wright, Pleasantville. —p. 93.
66 Tonsil Operation and Indications which Require It. C. B. Welton, Peoria, Ill.—p. 98.
67 Undernutrition in Children. A. M. Richardson, New York. —p. 101.
68 Possible Factor of Degeneracy. T. J. Downing, New London, Mo.—p. 103.
69 Syphilitic Joints. P. W. Roberts, New York.—p. 105.
70 Congenital Stenosis of Esophagus. H. Apfel, New York.—p. 108.
71 Case of Salivary Calculus. M. Nisselson, New York.—p. 109.
72 Impregnation of Underwear as Means of Controlling Clothes Louse. W. Moore, St. Paul, Minn.—p. 110.

New York State Journal of Medicine

June, 1918, **18**, No. 6

73 Psychology of War. J. M. Beck, New York.—p. 209.
74 Intestinal Obstruction; Report of Cases. H. P. Jack, Hornell. —p. 219.

Northwest Medicine, Seattle

July, 1918, **17**, No. 7

75 Base Hospital, Camp Lewis, Washington. H. G. Whitacre, Camp Lewis.—p. 191.
76 Naval Hospital, Puget Sound, Washington. R. E. Hoyt, Bremerton.—p. 197.
77 Seattle Hospitals. C. A. Smith, Seattle.—p. 199.

Pennsylvania Medical Journal, Athens

July, 1918, **21**, No. 10

78 Malignant Disease of Throat; Report of Cases. B. M. Dickinson, Pittsburgh.—p. 611.
79 Radical Cautery Operation in Carcinoma of Cervix. X. O. Werder, Pittsburgh.—p. 614.
80 Present Status of Hay Fever Treatment. C. C. Eves, Philadelphia. —p. 617.
81 Case of Myatonia and Three Cases of Progressive Muscular Atrophy with Metabolism Studies in Each. C. C. Wholey, Pittsburgh.—p. 620.
82 Late Results in Amputation of Breast for Carcinoma. J. J. Buchanan, Pittsburgh.—p. 623.
83 Operative Technic and After-Treatment of Inguinal Hernia. P. G. Skillern, Jr., Philadelphia.—p. 627.
84 Enthusiasm. H. W. Gass, Sunbury.—p. 631.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

July, 1918, **26**, No. 7

85 Removal of Intracranial and Spinal Fluids by Extracranial and Spinal Canal Routes for Obscure Fundi Eye Conditions. D. W. White and P. C. White, Tulsa.—p. 145.
86 Tuberculinized Milk in Tuberculosis. W. S. Gregory, St. Joseph, Mo.—p. 153.

Vermont Medicine, Rutland

June, 1918, **3**, No. 6

87 Differential Diagnosis Between Acute Alcoholic Intoxication and Alcoholic Insanity. E. O. Crossman, Burlington.—p. 143.

Wisconsin Medical Journal, Milwaukee

July, 1918, **17**, No. 2

88 Diabetes Mellitus. H. H. Milbee, Marshfield.—p. 48.
89 Indemnities Following Injuries to Eyes; How Shall We Determine Them? V. A. Chapman, Milwaukee.—p. 54.
90 Right Upper Abdominal Quadrant. V. F. Marshall, Appleton, —p. 61.
91 Smith-Indian Intra-Ocular Operation for Cataract. F. Allport, Chicago.—p. 66.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

June, 1918, **23**, No. 1

1 Treatment of Wounded by Means of Electricity. H. J. Seeuwen. —p. 5.
2 Case of Fibroid Tumor of Stomach. E. W. H. Groves.—p. 10.
3 New Radiator Type of Hot Cathode Roentgen-Ray Tube. W. D. Coolidge.—p. 11.
4 Stereoscopic Roentgenograms to Illustrate Anatomy of Temporal Bone, and Particularly Fallopian Canal. D. McKenzie and R. Knox.—p. 18.
5 Case of Pulmonary Abscess Occurring in Soldier During Active Service. A. H. Pirie.—p. 26.
6 Roentgenographic Examination of Metals. M. H. Pilon and T. T. Baker.—p. 27.

British Medical Journal, London

June 29, 1918, **1**, No. 3000

7 *Gunshot Wounds of Knee Joint: Conservative Operation at Casualty Clearing Station. R. Charles.—p. 713.
8 Knee Joint Capsule. Roentgenographic Study. F. R. Snell. —p. 717.
9 *Abuse of Drainage Tubes. F. Hathaway.—p. 718.
10 Anomalous Muscular Action in Nerve Injuries. D. M. Hughes. —p. 720.
11 Early Cardiac Breathlessness and Buffer Salt Deficiency in Blood. B. Moore.—p. 720.
12 Two Cases of Cardioptosis. W. Gordon.—p. 721.

7. Gunshot Wounds of Knee Joint.—Charles says that operations should never be attempted without the evidence of roentgenography when this is available. Accurate knowledge of the position of the foreign body and the extent of bone injury is invaluable in determining the procedure to be adopted in any case. The primary object is the scrupulous excision of infected material from the joint and its surroundings without spreading sepsis in so doing. To obtain this object it is absolutely necessary to secure a bloodless field throughout the operation, using a tourniquet for that purpose. The skin all around the knee is thoroughly washed, shaved, cleansed with alcohol, and painted with a solution of picric acid (5 per cent.) in spirit. The wound or wounds must then be packed gently with gauze to prevent leakage of infected fluid on the skin. The whole success of the case depends on attention to every detail which can contribute to the removal of soiled tissue without carrying infection into fresh tissue.

In nearly all cases it is possible to remove the entire track of the missile intact down to the joint cavity without permitting the knife or other instrument to touch the track or the infected surface of the wound. The incision employed for excising the wound varies according to the size and position of the wound, and should always be made with a view to extending it so as to give free access to the joint. All used instruments and gloves are exchanged for clean ones. The original opening is then enlarged and the state of the joint investigated.

The missile may be found loose in the joint cavity. In this case it is removed, and, if no injury is present within the joint, the cavity is thoroughly irrigated, and the joint closed in layers with a view to healing by first intention. If the missile is found impacted in the bone, and access can be got by enlarging the incision, this is done, even if it entails division of the tendopatellae. Free access to the joint is essential. The site of the foreign body is then isolated from the rest of the joint by gauze wrung out of saline, and the foreign body, together with the portion of bone surrounding it, is cut clean out in one piece. When the missile is situated on the side opposite to the wound, and if there is no injury to the intervening tissues, the original opening is closed and a fresh incision made directly over the missile. Grooved injuries are always treated as foreign bodies and excised *en masse*. Small comminuted fractures and chipping of the bone are dealt with in the same careful and thorough manner, the fractured surface being chiseled away along with the adherent fragments.

For irrigation of the joint, Charles invariably uses normal saline, and prolongs the process for several minutes so as to ensure a thorough mechanical cleansing of the joint. It has

been proved that adipose tissue, when transplanted onto any raw surface, has the property of becoming adherent to it, with little reaction or alteration in its original size. Charles has applied this practice to the knee joint in the cleaner cases for filling up a hole in the articular surface. The infrapatellar pad of fat, with the attached portion of synovial membrane, is usually convenient, and Charles has found that such a pad inserted into the bony cavity acts also as a plug in arresting the oozing of blood.

It is now a recognized fact that when the knee joint is given a fair chance it can deal with a mild infection, but not so the surrounding soft tissues; therefore it is important to close the joint completely and without tension. Beginning at the edge of the wound, the redundant synovial membrane is undermined from its attachments to the soft tissues and to the condyle all round the hole; it is then closed by suture, so as to exclude the bone lesion from the joint cavity. This is also done with wounds in the suprapatellar region. Again, in rare cases, where the patella has been removed and the severely lacerated condition of the adjoining soft parts renders it absolutely necessary to close the true joint cavity, the whole of the synovial membrane from the suprapatellar pouch may be brought down and sutured to the synovialis below. A further lateral incision may be required to give access for this dissection. The wound is sutured in layers—the synovial membrane by a continuous suture of fine catgut, the capsule is brought together by interrupted sutures, and the rest of the wound closed without drainage. In any case in which there is doubt as to complete absence of infected tissue, one or two Carrel's tubes are placed under the skin, in the hope of preventing sepsis. This, however, is seldom necessary. The dressing is applied with a firm bandage and the tourniquet is then released. Finally the leg is put up in a Thomas splint.

9. **Abuse of Drainage Tubes.**—Hathaway believes that if surgeons will take their courage in both hands, and will not be frightened by a little infection, leaving it to be dealt with by the natural resistance of the tissues to infection, and will give up the use of drainage tubes, they will not only find their results very much better, but they will find their outlook on surgery totally changed. All that is necessary is to put something into the tissues which will keep a "passage" open but which does not leave an open "drain." If a passage is required to be kept open, Hathaway puts in a piece of soft folded rubber—for instance, in an appendix abscess. This allows pus to come away, but will not leave an open "drain" by which secondary infection of staphylococci, from the skin, or other organisms can gain entrance.

War surgery has taught what should be the two main principles of civil surgery: 1. Early and complete operation. 2. That secondary or mixed infection is worse than primary infection. While the tissues of the body can, if give a fair chance, deal with one infection only, if that infection becomes a mixed one by entrance of organisms from outside, then the last state is worse than the first. Applying his experience of modern war surgery Hathaway started sewing up ordinary staphylococcic abscesses of the subcutaneous tissues, after incision and wiping out with bipp, and found they healed by first intention.

Hathaway then went a step further. He saw a case of perforated gastric ulcer two hours after perforation, and operated within four hours. He sewed up the perforation and, as it was near the pylorus and tended to close it, did a gastroenterostomy. He mechanically cleansed the peritoneum of food, washed out with flavine, and sutured completely. The result was healing by first intention and an uninterrupted recovery, better than he has experienced with the use of a drainage tube. Then he had to treat a bad compound fracture of tibia and fibula with a large external and contused wound, in a boy who had been run over by a motor lorry. He excised well clear of all damaged tissues—wiped out with bipp, and so mechanically cleansed and closed the whole wound by primary suture. The result was healing by first intention without a trace of suppuration.

The next step forward was in a case of gonococcal peritonitis. The peritoneum was infected and the abdominal cavity contained a turbid fluid; he removed one fallopian tube full of thick gonococcal pus, cleansed the peritoneum mechanically, washed out with flavine, and closed without drainage. The result was uninterrupted recovery and healing first intention.

A method of treatment in bone surgery which Hathaway employed in France was founded on the idea of eradicating the "dead space" in a bone following the loss of substance by a gunshot wound or by an operation for infection. His idea was that where a dead space or open cavity was left in a bone by destruction it should be filled, not by blood clots, allowing a nidus for primary or secondary infection, but by an antiseptic wax which could be poured in hot, and would gradually cool and fill up any cavity. Hathaway did this on three occasions with excellent results, using a compound of thymol, petrolatum and candle-wax, which would become semisolid at normal body temperature.

Lancet, London

June 29, 1918, **1**, No. 4948

13 Modern Views on Diabetes and on Significance of Acidosis in Disease. E. P. Poulton.—p. 895.
14 *Delayed Primary Suture. W. G. Ball.—p. 898.
15 Traumatic Aneurysm of Second Portion of Subclavian Artery; Operation. A. H. Tubby and J. B. Banister.—p. 902.
16 *Cerebral Galvanism: Treatment of Children Mentally Backward as Result of Prolonged Illness. F. Hernaman-Johnson.—p. 903.
17 *Selective Treatment of Paralyzed Muscles. W. J. Turrell.—p. 904.
18 *Sterilization of Local Anesthetics. M. Macnaughton-Jones.—p. 904.

14. **Delayed Primary Suture.**—The object of this paper, which deals with the records of 100 consecutive cases, is to bring to the notice of surgeons the desirability of performing the so-called "delayed primary suture" of wounds as frequently as possible in cases which permit of its being carried out. The wounds treated by Ball have been of all types (excision had been performed in all); for instance, excisions of skin only, skin and muscle, compound fractures embedded in muscle and those lying in subcutaneous situations, amputation stumps, and injuries connected with joints. In all the cases received it had been the object of the surgeon at the casualty clearing station (under instructions from the authorities) that this method of treatment should be adopted at the base, so that careful excisions of damaged tissues had been carried out and careful packing of pockets of the wounds instituted; the chief packs used were flavine and bipp, but ether and plain gauze packs also came to the base.

On arrival, the packs were not removed until the patient was taken to the operating room and anesthetized. The top dressings were then removed and the skin carefully washed with picric acid (2 per cent. alcoholic solution) before the pack was distributed. The pack was always removed with forceps, the fingers not being put into the wound at all. Rough removal of the pack was studiously avoided so as not to start hemorrhage, which Ball believes is probably a factor of great importance in obtaining a successful result. The characteristic appearance of the wound, which has been packed with gauze soaked in flavine (1:2,000), on the second to fourth day, is that it has a dry surface, dull in appearance, slightly sticky, without discharge or granulation tissue formation; a certain yellow discoloration is common but not always present. At a later date, a thin sticky exudate forms and may be seen in the earlier stages in the case of deep wounds of muscles. Ball says that it is uncommon to see a purulent discharge, but still such cases came under observation and were put aside until the wounds had been further cleansed. Bipped wounds have a somewhat similar appearance, but in addition minute particles of the ointment are present; the surface is rather oily than sticky. In both cases there is a tendency for the skin edges to become stuck to the underlying tissues.

For the most part the cases treated had had a single pack only applied, some two packs and in one case sewn up on the seventeenth day several packs had been used. Even in that case there were no granulations; the formation of granulations seems to be delayed by the application of drugs tightly packed into the interstices of freshly damaged tissues. After removal of the pack local treatment to the wound was, for

the most part, avoided, except in cases in which there had been bleeding in the removal of the pack or when an old blood clot was left in the wound from the original operation. Normal saline solution or flavine was used to get rid of such foreign material. Cases have exceptionally been sutured where actual suppuration was present, but only with the object of diminishing the size of the wound, thus avoiding large areas from which absorption could take place, and also relieving the patient from repeated and painful dressings.

In all wounds the skin was sutured with silkworm gut. In deep wounds (that is, including muscle excisions) penetrating, perforating, or gutter in type, the muscles were sutured with catgut, and on occasion with thread, with the object of preventing the formation of a deep-seated dead space. This is an important point and requires to be carried out with great care. In many cases the muscles were sewn in layers with buried stitches. Complete suture of the skin was the rule wherever possible. Partial suture had to be resorted to in some instances owing to the considerable loss of tissue as the result of the original excision operation, making complete suture impossible. Oil silk drains, removed on the second day after suture, were used in wounds appearing a little moister than desirable or showing a tendency to bleed as the result of manipulation. In amputation stumps drainage was the rule by means of rubber tubes. Gauze soaked in flavine was used as the surface dressing. In all cases great care was taken to see that the wound should be immobilized properly (splinting, extension, etc.), at least until the stitches were removed and even after that. The stitches were, as a rule, removed on the eighth day and the patient kept in the hospital until the twelfth day. Cultures were made at the time the pack was removed, but in no case was the result of the investigation awaited, as the wounds were sutured immediately after the removal of the pack. This is important, as the results tend to show the advantage of taking the clinical appearance of the wound as the indication for its suture rather than to depend on bacteriologic findings. It is one of the objects of this paper to show that a knowledge of the latter is not essential in order to get good, or one might even say the best, results.

Among the 100 cases there were 15 failures, 59 complete successes and 26 partial successes. The majority of the latter were completely healed before discharged from the hospital. In the failures the presence of bacteria in the wounds played a prominent part. In 7 out of 15 cases their presence was demonstrated. In 5 cases no cultures were made. In the other 3 no bacteria were present on cultivation. With one exception the clinical appearance of the wound warranted suture. In the three cases from which bacteria were not grown the wounds did not suppurate, but opened up after removal of the stitches, due to lack of healing power. Two flavine packs, one bipp pack. The same occurred in one of those in which no cultures were made. There is nothing to indicate that any one form of packing is better than another. Flavine has been used in 18 cases of partial success, 33 cases of complete success, and 7 cases of failure. Bipp has been used in 3 cases of partial success, 14 cases of complete success, and 4 cases of failure. Plain gauze has been used in 1 case of failure, 3 cases of partial success, and 3 cases of complete success. In the remainder Carrel, ether packs, etc., have been used. In order to obtain the best results it is obvious that adequate excision of the damaged tissues is essential; this is of primary importance, and unless it is carried out successfully the date of suture is necessarily delayed.

16. **Cerebral Galvanism.**—Hernaman-Johnson claims that cerebral galvanism has given brilliant results not only in neurasthenia, but also in paralysis due to cerebral trauma, when this has not resulted in actual destruction of brain elements. Such injury is usually confined to one hemisphere.

17. **Treatment of Paralyzed Muscles.**—Two objections have been raised to this form of treatment: (1) That the contractions produced are too jerky and abrupt, and do not possess the smoothness and evenness of a physiologic contraction; (2) that overaction of the healthy antagonistic muscles is excited, especially when muscles in an advanced stage of degeneration are being treated. Turrell says that both these objections can be overcome by the adoption of an ingenious method described by M. Louis Lapicque, the well known French physiologist. He found that if the current of excitation was made progressively, instead of, as is usually the case, suddenly and abruptly, the loss in efficiency due to this retarded excitation was less in the case of paralyzed muscles than in healthy ones. Lapicque accomplished this retardation by the employment of condensers placed in parallel. At the make of the current the condensers in parallel have to become fully charged before the full current strength reaches the patient; at the break of contact the condenser discharges through the patient in the direction of the current of make, and so damps the current at break. To be fully effective it is necessary that the time of discharge of the condensers should exceed the chronaxie of the nerve of the healthy muscles, but should be less than the chronaxie of the paralyzed muscles. The method does not as yet appear to have been much used in France; but in Turrell's opinion it is deserving of an extended trial, as both theoretically and practically it appears to remove the objections alleged against the use of the interrupted galvanic current in peripheral nerve lesions and in infantile paralysis.

18. **Sterilization of Local Anesthetics.**—A simple but effective method of preparing a sterile solution of cocain or other local anesthetic which may also contain epinephrin chlorid is described by Macnaughton-Jones. It consists in preparing a solution of sodium chlorid together with the anesthetic or anesthetics and epinephrin chlorid, each constituent being present in such quantity that a dilution with many (for instance, forty) times the volume of water will give a solution containing the requisite percentage of each. The preparation is placed in a sealed phial or ampoule and kept until required. Sterile water is added immediately before injection. Experiments demonstrate that even if the preparation be inoculated with the ordinary forms of bacterial contamination the presence of concentrated salt renders it sterile in a few days. A simple method of preparing the concentrated solution is to take the quantities of anesthetic, salt, etc., required per 1,000 and dissolve in water, but make up to 25 instead of to 1,000. The concentrated solution Macnaughton-Jones prepared contains: procain, 3.25 (13 per cent.); sodium chlorid, 3.25 (13 per cent.); epinephrin chlorid solution (1 in 1,000), 8.0 (32 per cent.); water by weight (or metric), add 25.0 (100). If a 2 in 1,000 (0.2 per cent.) solution of cocain be desired the formula would be modified as follows: The osmotic pressure of such a solution is only equal to that of a 0.35-1,000 sodium chlorid, and consequently about 3.65-1,000 of this salt is added; but, inasmuch as cocain produces anemia, the epinephrin may be reduced if desired. The concentrated solution: cocain hydrochlorid, 2 (8 per cent.); sodium chlorid (approximately), 3.75 (15 per cent.); epinephrin chlorid (1 in 1,000), 6 (24 per cent.); water by weight to 25 (100).

Journal de Médecine de Bordeaux, Paris

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19 *The Mosquito Question. A. Le Dantec.—p. 151.
20 *Hydrarthrosis of Knee in the Wounded. L. Laubie.—p. 158.
21 *Mycosis Simulating Pulmonary Tuberculosis. R. Canio.—p. 162.
22 Sanatorium for Weakly Children. R. Molinéry.—p. 166.
23 Medical Students in the War. Anonymous.—p. 171.

19. **The Mosquito Question.**—Le Dantec has been studying this question at a seacoast town where mosquitoes abound and the inadequacy of the water supply compels the collection of rain water in cisterns and hogsheads, etc. His conclusion is that the secret of success under the conditions prevailing there is to keep everything screened or covered, and he declares that the local police could enforce this if the municipality orders it. The mayor of Monaco has passed a decree of this kind, ordering that all recipients of water in the grounds and porches must be hermetically closed, as also fountains unless there is a continuously flowing jet or the basin is stocked with fish or is sprayed with petrol every two weeks, 15 c.c. to the square meter. Roof tanks and cisterns must be kept covered and constantly clean, and be cleared out at least once a year. The local health board sees to it that these regulations are enforced, with strict oversight and

prompt prosecution of offenders. A campaign of educating the public should be undertaken, showing the people that they raise their own mosquitoes to torment them, and that they can stop this at any time they wish.

20. **Hydrarthrosis of the Knee.**—Laubie deplores that so many men with hydrarthrosis of the knee are allowed to go for months before the knee is punctured. When the joint effusion is withdrawn promptly, smooth recovery is the rule in thirty or thirty-five days, but he has encountered many cases in which this was neglected or postponed, and the men after eight, eleven or more months are still incapacitated by their knee lesion. In one of the cases reported the man had been given treatment at ten different hospitals in the sixteen months, but with little benefit. Laubie then punctured and withdrew 60 gm. of fluid and rinsed out the cavity with a 1 per cent. phenol solution. Puncture alone is not enough, as he shows by some examples. It should be supplemented by lavage of the joint cavity with some antiseptic. Among the seventeen cases described were some with gonorrheal or rheumatismal hydrarthrosis but all yielded the same to puncture with lavage, exercise and massage. In one case the hydrarthrosis was evidently the work of a lesion of the sciatic nerve, but this too yielded to puncture and a splint. He sometimes injects 4 or 5 c.c. of a 1 per cent. solution of cocain before the lavage, but usually this is not required. The amount of fluid withdrawn varied from 30 to 500 gm. The success was complete in his twenty-eight cases, with the exception of two in which there was a hygroma or a lesion of the patella. Immobilization and revulsion may cure in quite recent cases of hydrarthrosis; if not, puncture and lavage can be relied on for a prompt cure. One woman of 75 was using the knee in walking ten days after the puncture. With a chronic lesion of this kind, if there is no fluid evident, he systematically brings on a recurrence by forced walking before he intervenes.

21. **Mycosis Simulating Tuberculosis.**—Canio's patient was a man of 31 who for six weeks had presented a cough, asthenia, backache, periods of fever and intense pain in the right scapular region, and later throughout the right chest. After nearly three months there was a chill and high fever with signs of pleurisy with effusion. After this he began to improve and seemed to have entirely recovered by the end of the fifth month. The symptoms for several months had deceptively simulated those of pulmonary tuberculosis, but the laboratory cleared up the diagnosis, showing the *Penicillium glaucum* in the sputum, reproducing the mycosis by injecting rabbits with the sputum, while the biologic tests and seroreaction confirmed the mycosis nature of the disease. Prompt recovery followed under iodid treatment.

Nourrisson, Paris

May, 1918, **6**, No. 3

24 *Syphilis in Children in Morocco. Lacapère and Laurent.—p. 129.
25 The Technic for Artificial Feeding. A. B. Marfan.—p. 137.
26 *Invagination of Intestine in Infants. E. Apert.—p. 148.

24. **Syphilis in Children in Morocco.**—Lacapère and Laurent state that among 1,000 syphilitic natives examined, no less than 161 were children under 15. Thus 16 per cent. of the syphilitics were children. Fully 75 per cent. of the natives in their district have syphilis, and the children born without it are liable to acquire it soon. In only 37 of the 161 cases of syphilis in children had the disease been inherited. The child mortality is appalling; 70 per cent. had died of the children of 44 syphilitic women who had each borne over six children, and 55 per cent. of the children of 44 nonsyphilitic women with five children each. Malaria, amebic dysentery and diarrheas lie in wait for the Arab children, and the frequent syphilis and utter lack of hygiene render them more susceptible.

26. **Intussusception.**—Apert emphasizes the necessity for early recognition of acute invagination as it is almost certainly fatal in infants if not promptly corrected. Recent compilations show a general average of 14 per cent. mortality with operations for invagination within the first twelve hours, up to 78 per cent. mortality by the fourth day. In Grisel's compilation, 68 per cent. of the 300 cases were in infants. In all statistics, male infants form over two thirds of the cases (89 per cent. in Rilliet's compilation). The invagination in infants was ileocecal in 82 per cent. of the cases. The small intestine alone was involved only in 5 per cent. Vomiting is the first symptom and it keeps up. The child looks very sick and distressed, and with his hand seems to be trying to push off from his abdomen something that is hurting him. The stools show blood from the first day; they soon become a reddish brownish soft mass, more or less mixed with mucus, with fifteen or twenty passages a day, but sometimes scarcely more than the mass of a large sputum is passed.

There is no occlusion of the bowels in infants from the invagination, no constipation, no retraction, no induration, no tympanism, at least at first. The abdomen is soft until peritonitis complicates the clinical picture. The invagination is differentiated by the combination of the vomiting, pain and the bloody stools. If no feces are available for examination, the physician's finger introduced into the child's rectum will become coated with the characteristic brownish red paplike stool. It is sometimes possible to detect with the finger in the rectum the tip of the invaginatum. In some rare cases the tip projected from the anus, simulating prolapse of the rectum. When the mass formed by the triple-walled cylinder of the invaginated bowel has become congested and inflamed, the tumor thus formed can be palpated. Although the invagination usually starts in the ileocecal region, it advances along the colon, growing constantly longer, which shortens the bowel outside of the invagination, and this draws the invaginated portion more and more out of place, toward the left iliac fossa or into the small pelvis. Hence the invaginated portion is often found in the left iliac fossa or in the hypogastrium, rather than in the ileocecal region where it started.

Paris Médical

May 11, 1918, **8**, No. 19

27 *Night Blindness. A. Magitot.—p. 369.
28 *Bone Periosteum Grafts. Virenque.—p. 373.
29 *Treatment of Syphilis of the Nervous System. A. Tzanck and A. Bernard.—p. 376.

27. **Adaptation of the Eye to Comparative Darkness.**—Magitot remarks that hemeralopia is not uncommon in soldiers at present. Its mechanism is evident, with retinitis from inherited or acquired syphilis or other lesions. When there are no objective findings, the hemeralopia may be congenital, and sometimes inherited. Examples of hemeralopia through several generations are known, the hemeralopia transmitted through the females to the males. Sclerosis in the elderly may also entail hemeralopia, and it has been observed in persons struck by lightning, and as a consequence of kidney or liver trouble. But all these causes combined, he says, do not explain the prevalence of this *cécité crépusculaire* in the soldiers. It must be that many of them had had hemeralopia in civilian life without knowing it. Conditions with myopia favor it, and the stress of active service and effects of autointoxication may transform relative into absolute night blindness. Abuse of alcohol is another predisposing factor. Rest in bed for a week, on a milk diet, with diuretics, and abstention from meat afterward will rapidly cure true hemeralopia, as a rule, when kidney and liver disease have been excluded.

28. **Bone-Periosteum Grafts.**—Virenque adds his testimony to that of others who emphasize that a graft including bone and periosteum is a "physiologic" implant, which in a few months becomes transformed into compact tissue. His experience with it has been mainly with pseudarthrosis of the lower jaw.

29. **Treatment of Syphilis of the Nervous System.**—Tzanck and Bernard report encouraging results from their method of intravenous injections of arsphenamin in increasing doses, each followed after an interval of five minutes by lumbar puncture evacuating at least 10 c.c. of cerebrospinal fluid. This method of treatment, they say, ranks next to intraspinal injection of arsphenamized spinal fluid, and is safer than the latter when there is doubt as to the soundness of the neuraxis. The details of eleven cases are given; manifest improvement was realized in about two thirds of them.

Presse Médicale, Paris

June 10, 1918, **26**, No. 32

30 *Edema without Nephritis. M. Labbé and Marcorelles.—p. 289.
31 Care of Amputation Stump. P. Desfosses.—p. 290.
32 Tardy Tetanus. E. Antoine.—p. 293.
33 *Bacteriologic Examination of War Wounds. C. Levaditi.—p. 294.
34 Tetanus Localized in Limbs. E. Chauvin.—p. 295.
35 *Hemorrhage after Tonsillectomy. J. Labouré.—p. 296.

30. **Edema Without Nephritis.**—Labbé and Marcorelles report two cases of diffuse edema, with anasarca and retention of chlorids, independent of any tendency to kidney disease. In both cases the severe dropsy developed toward the close of an attack of dysentery of moderate severity in one and very serious in the other case. The edema kept up until salt was excluded from the diet, and with this and theobromin the dropsy rapidly subsided. Others have reported similar cases, occurring likewise when the system had been drained of fluids, albumin and salts by the dysentery. The edema in extent and intensity may simulate that of chronic nephritis.

33. **Technic for Bacteriologic Examination of War Wounds.**—Levaditi reproduces the simple bacteriologic case chart in use for the wounded as a guide to the surgeon.

35. **Hemorrhage After Tonsillectomy.**—Labouré gives an illustrated description of the way to suture the pillars, applying three suture threads and tying them over a roll of gauze, or applying a series of three or four Michel clips. The clips can be applied over a piece of rubber tubing about the size of a lead pencil. He tests the blood beforehand to exclude abnormal coagulating properties, or as an indication for horse serum and calcium chlorid. If the operative wound bleeds much, he applies cotton dipped in horse serum, with suture or the clips if the hemorrhage keeps up; with ligation of the common carotid if all else fails. This, he says, done under local anesthesia is both benign and effectual, as he has proved in three cases reported. In one the ascending pharyngeal artery alone was ligated, in the others the common carotid. These patients were all young adults.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 1, 1918, **48**, No. 22

36 *Tuberculosis in Soldiers. R. Staehelin.—p. 721.
37 *Lactic Acid in Stomach. H. A. Rodella.—p. 726.
38 "Iron Placenta" Test for Pregnancy. P. Hüssy.—p. 733.
39 Cutis Verticis Gyrata; Four Cases. S. Galant.—p. 743.

36. **Tuberculosis in Soldiers.**—Staehelin reviews his personal experience with tuberculosis in Swiss soldiers. One point brought out by some of the cases is that severe stomach disturbances may be the first and for a time the only appreciable symptoms of beginning tuberculosis. There had been subfebrile temperature for some time, but the tuberculin test was negative, and Schlapfer's experience with numbers of persons with subfebrile temperature followed through years showed that only a third developed tuberculosis during the following six to ten years. Hence the diagnosis of tuberculosis cannot be based solely on a subfebrile temperature. The gastric symptoms: vomiting, with slight admixture of blood, pains and tenderness, suggested gastric ulcer, but the subjective disturbances ceased on wearing a band to support the sagging stomach. Five months later they had all returned, with cough and night sweats. Some of the other cases illustrate the importance of examining twice a day for the focal reaction, after the tuberculin test, as otherwise it may escape detection. Of all the men with tuberculosis or the suspects, including those with pleurisy with or without effusion, only 33 per cent. are now clinically cured. This shows the great burden placed by tuberculosis on the military insurance funds, and this burden will increase in the next few years. Many of these men would not have developed tuberculosis if left in civilian life, and it is hard to determine the exact share of the military service in its development. In 1916 the plan was adopted of giving the married tuberculous soldier only one half and the unmarried one quarter of the regular sickness pension provided by law. This is working well, Staehelin says, although theoretically every man disabled by sickness should get the full pension to which he is entitled by law. A collective inquiry has shown that the pension allowed is inadequate in about half of the cases.

37. **Lactic Acid in the Stomach.**—Rodella found lactic acid constantly in the stomach in thirty-five cases of gastric carcinoma. Sarcinae were found in three of the thirty-five. In a case of carcinoma of the right kidney pelvis, there was considerable lactic acid in the sound stomach, which shows that it is not exclusively restricted to cancer in the stomach. The symptoms in this case for a long time had pointed merely to the stomach, and a simple ulcer was found in it.

Riforma Medica, Naples

June 8, 1918, **34**, No. 23

40 *Recurring Prolapse of Rectum. D. Giordano.—p. 442.
41 *Symptoms after Injury of Internal Carotid. G. Bastogi.—p. 444.
42 Diagnosis of Adhesive Pericarditis. G. Moscati.—p. 449.
43 Vaccination against Smallpox. S. Belfanti.—p. 454.

40. **Recurring Prolapse of the Rectum.**—Giordano's patient was a woman of 72 who had had two operations done in the last eighteen years to correct prolapse of the rectum, without durable benefit. He discusses the various technics that had been or could be applied, and reports complete success with measures directed toward sustaining the upper part of the bowel and reenforcing the floor of the perineum. Neither alone would have sufficed. The visceral ptosis was corrected by anastomosis between the sigmoid flexure region and the anterior aspect of the cecum. This drew up the rectum and abolished at one stroke all the pathologic conditions maintained by the torpor of the excessively long and sagging large intestine.

41. **Hemiplegia After Ligation of External Carotid.**—Bastogi relates that the internal carotid had been injured by a projectile and ligation of the external carotid was required later. Right hemiplegia and aphasia developed suddenly four days afterward, and in a few weeks there were epileptiform spasms on that side. The course of the projectile apparently exculpated the war wound as the direct cause of the brain symptoms. There was evidently some embolism in a cerebral artery and this in turn induced an inflammatory reaction in the tissues around.

Rivista Critica di Clinica Medica, Florence

June 8, 1918, **19**, No. 23

44 Epidemic of Cerebrospinal Meningitis at Friuli, 1915-1917. G. Berghinz.—p. 265. Concluded in No. 24, p. 277.

Brazil-Medico, Rio de Janeiro

April 27, 1918, **32**, No. 17

45 *The Lutz Research Commission. O. A. Penna.—p. 129. Commenced in No. 16, p. 121.

45. **Bacteriologic Research Commission in Northern Brazil.**—The research on endemic diseases in northern Brazil was undertaken mainly to study the *Schistosomum mansoni*. The commission was headed by Professor Lutz, and its three years of work have established the biology of this parasite. Its life cycle has been traced from the characteristic lateral-spined ovum through the intermediate host, which is a fresh-water snail, to the adult parasite in rabbits, guinea-pigs and man. His laboratory findings were confirmed in every respect by conditions in nature in northern Brazil—this parasite is not known in the rest of the country. He took with him patients suffering from this helminthiasis to have them point out on rivers and lagoons the spots where they had probably become infested with the parasite. The infestation is usually by way of the skin, as the subject bathes in water containing the larvae escaping from these snails, or walks barefoot along the river bank. Pernambuco, Sergipe and Bahia are the main centers of this helminthiasis. Only the ova seem to cause disturbances; the carriers of the adult parasites present no appreciable symptoms. At necropsies the ova were found frequently in the rectum, liver, lungs and brain. In some cases supposed to be rebellious amebic dysentery, these lateral-spined ova were found in large numbers in the stools, as also in cases of cirrhosis of the liver in younger men not addicted to alcohol. Penna remarks that the ova imprisoned in liver, lungs and brain are of course unable to complete their evolution. They are also inaccessible to therapeutic measures until we discover some absorbable drug with an affinity for the helminths and somewhat organotropic, or find

some means to act on the parasite in the portal region. P. da Silva's recent research has definitely established that this schistosomum is a distinct species, not a variety of the hematobium.

45. **Endemic Disease in Northern Brazil.**—In the course of Lutz' research he found that 80 per cent. of the persons examined were carriers of the *Necator americanus*, and from clinical observation alone he estimates that 60 per cent. have hookworm and a similar proportion have malaria. The commission further became convinced that the infectious disease known locally as remittent bilious fever, in some cases, at least, is an incomplete form of yellow fever. This assumption explains the otherwise inexplicable appearance now and then of sporadic cases of actual yellow fever with no known chance for infection. In any event, strict isolation of these cases of so-called remittent bilious fever is imperative.

The mosquitoes are so thick along the rivers of northern Brazil that the commission sometimes felt as if works of effectual prophylaxis were not only beyond human powers but even beyond human imagination. A few cases of bubonic plague were encountered here and there. The city of Penedo has been visited several times with serious epidemics of plague. Prophylaxis of plague in these towns would be extremely difficult. A disease was encountered at one town which seemed to be smallpox but the general health was not impaired; there was no fever and no pitting, and vaccination was no protection against it. There was only one fatal case among the 200 inspected. Only four cases of Vincent's angina were encountered, and no cases, outside of Bahia, of tropical leishmaniasis. No case of Chagas' disease was discovered, although the beetle host was common. None of the numerous specimens examined harbored Chagas' trypanosome. Syphilis was found widely disseminated. Large numbers of blind persons showed the ravages of trachoma, smallpox, syphilis or gonorrhea. A number of "polyvalent individuals" were encountered, that is, affected at the same time with malaria, syphilis and hookworm. Penna adds, "The government has undertaken a campaign to arrest the ravages of the pink boll worm in the cotton plantations, but to date nothing has been done to combat the human endemics."

Medicina Ibera, Madrid

April 6, 1918, **2**, No. 22

46 *Intensive Local Treatment of Syphilids. A. S. da Aja.—p. 1.
47 Spontaneous Cure After Delivery of Hernia Developing in Pregnant Women. A. F. Martinez.—p. 5.
48 Tuberculosis and Lactation. B. Frias and Muñoverro.—p. 10.

April 20, 1918, **2**, No. 24

49 Radium Treatment in Rhinolaryngology. J. M. Barajas.—p. 61.
50 Various Types of Lichen Papule. Sicilia.—p. 64.
51 Hygiene of Vision. D. M. Marquez.—p. 65.
52 The Convalescent's Decalogue. H. R. Pinilla.—p. 71.
53 *Endocarditis with Puerperal and Gynecologic Disease. A. Gracia.—p. 71.

May 4, 1918, **2**, No. 26

54 Manic-Depressive Insanity. S. Herreros.—p. 125.
55 *Treatment of Severe Seborrhea. Sicilia.—p. 127.
56 Treatment of Chronic Constipation. R. M. Terol.—p. 127.

46. **Local Treatment of Syphilids.**—De Aja advocates intensive local treatment for a just beginning chancre when there is a chance for aborting the infection. Also when a secondary or tertiary lesion seems to be the sole or the principal manifestation of the disease and focus of the spirochetes. Also when a lesion keeps recurring at the same point and these recurrences suggest a special local resistance to the general treatment. Also when disease in kidneys, heart or liver prevent effectual general treatment. Local measures include first excision of the lesion, when practicable, dusting with iodid or arsphenamin preparations or injecting a 1 per cent. solution of the iodid, or applying dressings moistened with 1 per cent. arsphenamin, or injecting a 1 per five hundred solution deep into the tissues if the latter are loose, a 1 per thousand if they are compact. These local measures induce lively reactions but they destroy the focus.

53. **Puerperal Endocarditis.**—Gracia discusses endocarditis and embolism after childbirth and with gynecologic disease. He emphasizes the decisive importance of an early diagnosis, and urges obstetricians and practitioners to apply auscultation early and often to their parturients. At any signs of modification of the normal heart sounds, they must be on the alert to insist on the necessity for absolute rest and for refraining from large doses of heart tonics, especially digitalis, as this might bring on embolism. In a case of gonococcus salpingitis in a young woman, very high fever developed with chills, frequent lipothymia, tachycardia, low blood pressure and modification of the heart sounds, and this kept up with very little variation for nearly fifty days. The symptoms then subsided and there has been nothing to call attention to the heart since, not even during an intercurrent normal pregnancy, but there are occasionally slight symptoms that suggest some persisting tubal mischief. The treatment consisted of general daily baths, during the high fever, small saline infusions daily, with camphorated oil and caffein when the heart grew weak, and injections of epinephrin and a pituitary preparation. In another case a woman developed a dragging gonococcus endocarditis, as a complication of chronic salpingitis. The fever was never over 38.6 C. for five months, but then there were signs of septic embolism in the kidney, liver and legs, with final symmetrical gangrene. No benefit was apparent in this case from antigonococcus vaccine, but in a case of gonococcus endocarditis in a man, the symptoms subsided at the fourth injection of a polyvalent vaccine. When extrasystoles develop and the pulse grows weak, the liver becomes congested and albumin appears in the urine, he gives a small daily dose of digitalis for ten days, suspends for five and then gives it for another ten days, and so on. If the heart is overexcitable, he applies an ice bag and gives valerian or quinin bromid in small but continued doses, with camphor and caffein as indicated. During fever he allows only a liter of milk and a liter of some weak herb tea; as the fever subsides, 1.5 liter milk and soups made with milk; bed rest during fever, and on a couch when the fever subsides. When the acute stage is past, he gives iodid and arsenic and then mineral waters. An interval of three or four months should elapse between the acute phase and the course of thermal mineral waters of the saline type. These aid in toning up the whole system, including the endocardium, warding off a possible recurrence of trouble.

55. **Treatment of Severe Seborrhea.**—Sicilia insists that treatment and prophylaxis to ward off recurrence must attack the local lesions, combat the obesity, inherited taint or other general predisposing factors, and seek to regulate the functional disturbances common in such cases. Examination of the urine is a guide to treatment, as it may show the need of tonics or of clearing out of waste products. The weight should be watched also. There is generally hyperchlorhydria, hypophosphaturia or hyperacidity to be combated. Exercise and general local massage are useful, besides vigorous and varied topical applications.

Prensa Medica Argentina, Buenos Aires

April 30, 1918, **4**, No. 33

57 *Skin Manifestations from Tardy Inherited Syphilis. M. R. Castex and E. Centeno.—p. 479.
58 Mercury plus Cholesterol in Treatment of Syphilis. E. F. Solari.—p. 484.
59 *Resection of the Patella. R. Finochietto.—p. 486.

57. **Skin Manifestations of Tardy Inherited Syphilis.**—Castex and Centeno state that these manifestations may develop at any age, but they usually appear during adolescence, and predominantly in girls. They are rebellious to all measures except specific treatment for syphilis. Under this they promptly retrogress, if taken in time. Specific treatment should be instituted at once in all dubious cases, as otherwise they entail irreparable lesions leaving disfiguring scars.

59. **Resection of Patella.**—Finochietto remarks that in a certain class of cases he has found it advantageous to induce ankylosis of the knee. To render it more stable, he excavated a mortice hole in the lower cut surface of the femur, and in this hole introduced the upper end of the fibula, cut in a truncated square pyramid to correspond. Both femur and tibia had been resected into sound tissue on account of a chronic purulent process in the knee, resulting from a bullet wound some months before. The ankylosis thus realized was firm and durable without extraneous aid. The shortening of the leg was corrected with a thick soled shoe.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

March, 1918, **26**, No. 3

60 *Bladder Stones in Children. A. de F. Guião.—p. 91.
61 *Yellow Fever in Victoria on the Coast. T. Torres.—p. 111.

60. **Bladder Stones in Children.**—Guião remarks that concretions in the bladder are most common at the two extremes of life, in young children and in the aged. The male children of the poor and the aged form the overwhelming majority of bladder stone cases. In published statistics, children under 14 formed 50 per cent. of the cases, and the greatest frequency was between the ages of 3 and 5. The symptoms are generally merely pain, pollakiuria and the aspect of the urine. The pain radiates to the perineum, rectum, penis and lumbar region. The pain is especially sharp at the close of micturition, when the bladder contracts over the concretion. Repose relieves the pains; it is not felt at night. If the concretion is small it may induce merely slight incontinence, frequent desires to urinate and pruritus of the genital organs. The child rubs the genital organs, so that an especially exuberant prepuce is an instructive sign of bladder stone not causing appreciable symptoms. Palpation through the rectum and hypogastrium may reveal the concretion, or an ordinary catheter introduced into the bladder.

In one of his cases a metal probe disclosed the presence of a supposed concretion in the bladder, but it proved to be a hard tumor. It is difficult to apply the cystoscope to a male child, and radioscopy is likewise difficult; even the use of the No. 12 catheter or metal sound had better be preceded with injection of an anesthetic into the urethra. Operative treatment is the only radical means of cure when the concretion is once formed. The difficulty and the danger of injuring the urethra in the child render lithotrity rarely applicable. The suprapubic incision of the bladder is the measure advocated by Guião. He relates ten typical cases to show the harmlessness, the convenience and the complete success of the removal of the stones by the suprapubic route. In one child of 14 months, the stone must have been congenital, as the disturbances in micturition had been noted from birth. The incisions all healed by primary intention and the children were dismissed from the hospital between the tenth and the twentieth day. The calculus in one boy of 10 was as large as a hen's egg. The concretions seemed to be single in each case.

61. **Yellow Fever at Victoria.**—This is a city of 15,000 inhabitants on the coast, 270 miles north of Rio. There were sixty-one cases of yellow fever there early in 1917, and this is the official report of the representative of the national public health service sent to stamp out the epidemic. This was successfully accomplished.

Revista de Medicina y Cirugia, Havana

June 10, 1918, **23**, No. 11

62 *Prevention of Deafmutism. H. Seguí.—p. 291.
63 Branchial Cyst in the Neck; Two Cases. E. Stincer.—p. 295.

62. **Prevention of Deafmutism.**—Seguí comments on the difficulty, even for a physician, to distinguish between congenital and acquired deafness in an infant. But the distinction is extremely important as, without congenital atrophy of the organ, there are generally vestiges of hearing left which are susceptible of being trained. Left unexercised, the auditory nerve finally becomes incapable of functioning. Seguí outlines the exercises capable of rousing these dormant vestiges of hearing, first with loud sounds, then with words and syllables. Loss of hearing before the age of 4 often entails mutism. Even if the child is older when it becomes deaf, it is liable to forget the mechanism of speaking unless pains are taken to keep it practiced. Seguí recently encountered a case of deafmutism acquired in this way. The child's speech and hearing were normal till the age of 5 when it was rendered deaf by having hot oil poured into its ears by a quack, and the child since has forgotten how to talk.

Semana Medica, Buenos Aires

March 28, 1918, **25**, No. 13

64 Dr. Coni's Work on Buenos Aires Institutions for Care of the Sick and Poor and for Welfare Work in General. J. Penna. —p. 337.
65 *Mortality at Rosario. J. B. Valdes.—p. 340.
66 Compulsory Notification of Tuberculosis. E. R. Coni.—p. 344.
67 Care of Children's Teeth in Institutions. Zawels.—p. 348.
68 Combinations of Iodin and Tuberculin. J. Frenguelli.—p. 354.
69 Otogenous Meningitis without Pus in Tympanum. F. Eiras. —p. 358.

April 4, 1918, **25**, No. 14

70 *Ectromelic Monster. J. C. L. Massini.—p. 365.
71 *Tuberculosis in Western South America. S. de Madrid.—p. 371.
72 Federation of Mutual Aid Societies. E. R. Coni.—p. 375.
73 Diagnosis of Appendicitis. G. Giacobini.—p. 376.
74 *Legislation on Mutual Aid Societies. A. M. Gimenez.—p. 377.
75 Indications for Induced Sneezing. S. V. de Castro.—p. 383.

65. **Mortality from Infectious Diseases at Rosario.**—Valdes' tables of statistics show that since 1915 there has not been a fatal case of smallpox at Rosario, but there were two deaths from plague in 1917, and 631 from tuberculosis. (Rosario's population was given at about 100,000 in a recent census. It is on the river about 250 miles above Buenos Aires.)

70. **Congenital Amputations.**—The roentgenograms of the case reported by Massini confirm the assumption that the so-called amputations are in reality malformations, in consequence of some process of degeneration or necrosis. The limbs show different malformations above the supposed amputation from constricting bands.

71. **Tuberculosis in Brazil, Peru, Bolivia and Chile.**—This is a series of letters, each from an authority in the different countries, replying to de Madrid's questionnaire. All emphasize the high incidence of tuberculosis in negroes, and also in the native Indians when they settle in towns. The death rate from tuberculosis is increasing in each country but much more rapidly in the towns. In Chile, the negro and Indian races have been so decimated by tuberculosis that these races are dying out, and the population is gradually growing white. Persons who return to Chile after a few years' absence comment on this constant blanching of the populace. The only exception is Bolivia; in this country the Indians lead out-of-door lives, and the high altitudes cause the chest measure to be exceptionally large. It is always up to 7 cm. above the average chest measure for the height. The red corpuscle count is also high; it was found up to 7,146,666 in the men examined. The Indians lose their immunity to tuberculosis when they seek work in towns. The half-breed working classes have most of the cases, aside from the tuberculous aliens who seek health in the mountain climate of Bolivia. It is dangerous for those who have heart trouble.

74. **Mutual Aid Societies.**—Gimenez presents an outline for legislation to regulate the founding and functioning of mutual aid and fraternal organizations. He specifies in particular the provisions for providing medical service and medicines, instruction in hygiene, etc., for the members, and for the federation of different societies.

Siglo Medico, Madrid

May 4, 1918, **65**, No. 3360

76 *Tuberculous Hyperthyroidism. R. S. de Santa Maria.—p. 342.
77 *Two Months in Pulido Martin's Service. B. Gomez.—p. 344.

May 11, 1918, **65**, No. 3361

78 History of Municipal Sanitary Inspection. V. Prieto.—p. 362.
79 *Trauma of Urinary Apparatus. S. Pascual.—p. 364.

76. **Tuberculous Hyperthyroidism.**—A case is described in which the vagotonic hyperthyroidism suggested exophthalmic goiter, but unmistakable signs of apical tuberculosis disclosed its toxic origin from the tuberculosis toxins. Under specific treatment of the tuberculosis, the apex cleared up and with this all the thyroid symptoms disappeared. In some cases of pure exophthalmic goiter, the writer has witnessed a spasmodic cough suggesting tuberculosis, of purely vagotonic origin, as also in some cases of simple poisoning from thyroidin. Hypothyroidism may accompany tuberculosis, and thyroid treatment may effectually supplement specific treatment of the tuberculosis, which without it may fail of success. Hypothyroid rheumatism, he says, is comparatively common and exceptionally amenable to treatment.

77. **Some Minor Urologic Points.**—Gomez mentions the instructive findings when a light is introduced into the rectum or vagina to aid in cystoscopy. Lurking gonococci in the

seminal vesicles may be dislodged and destroyed by injection of a silver salt into the vas deferens. This requires an insignificant operation to expose the vas; cases thus treated have been cured or much improved. This had evidently destroyed the focus responsible for the gonorrheal rheumatism in some cases.

79. **Trauma of Urinary Apparatus and Workmen's Compensation.**—Pascual calls attention to the perils that menace a working man after a traumatism affecting the urethra. He may have apparently entirely recovered, but after a few months signs of stenosis can be discovered if carefully sought.

Acta Scholae Med. Univ. Imp. in Kioto

March, 31, 1918, **2**, No. 3. German Edition

80 *Experimental Ileus. S. Ogata.—p. 235.
81 Pharmacology of the Oxyhydro-Aromatic Bodies. Y. Sasaki and K. Okushima.—p. 257.
82 *Hemostatic Action of Gelatin. J. Ono.—p. 271.
83 *Action of Toxins on Perfused Uterus. S. Okamoto.—p. 307.
84 Influence of Pyroracemic Acid on Experimental Acidosis and Glycosuria. T. Suga.—p. 375.
85 *Disinfectants for Wounds. H. Tsuji and K. Tachibana.—p. 387.
86 *Improved Recording Instruments. A. Gohara.—p. 399.

80. **Experimental Occlusion of the Intestine.**—Ogata concludes from analysis of what has been published in this line and his own extensive experience, that in the majority of the experiments, the occlusion was not complete. The supposed total occclusion was merely more or less stenosis of the pylorus or bowel. Complete occlusion can be realized by merely ligating with a strip of fascia from the vicinity. This autoplastic material does not cut through as do all other materials. It heals organically in place and the passage is permanently closed.

82. **Hemostatic Action of Gelatin.**—Ono says that gelatin has been used as a hemostatic in China and Japan from prehistoric days, but it has been used in Europe only since Hecker (1838). He has been studying the mechanism of its action, and comparing it with other hemostatics. In the test tube it promotes the coagulation of blood, even when coagulation has been checked with extract of leeches. This confirms that the hemostatic action is due to the sticking together of the blood corpuscles, and not to an action on the walls of the blood vessel or other factor. The blood corpuscles stick together, face to face, in the coin-roll manner. Other substances which have hemostatic action cause precipitation of the corpuscles, as well as agglutination. This group includes starch, agar, abrin, alien serum, alum and copper sulphate. The substances of the gelatin group alone have a coagulating action in vitro. From the alimentary canal, however, they have no action at all.

83. **Action of Nerve and Muscle Toxins on Perfused Uterus.**—Okamoto experimented with various animals and gives forty-five tracings showing the action of pilocarpin, atropin, etc. His findings are compared with those of others and his own previous research. Among his practical conclusions is that pilocarpin must never be given to pregnant women as it exerts a stimulating influence on the motor function of the uterus as well as of the bowel. Atropin may counteract this stimulation to a certain extent. Nicotin first inhibits and then stimulates; cocain induces tetanic spasms when in a weak dilution but paralyzes in a stronger solution. Epinephrin behaves differently in different species, exerting a stimulating action in the cat, rabbit and guinea-pig, but inhibiting the rat uterus. Quinin has an inhibiting action on the nonpregnant uterus but stimulates the pregnant or puerperal uterus, as the stretched uterus fibers are more sensitive to stimulating influences of all kinds. Hence the therapeutic administration of quinin to the pregnant should be very cautious, as it might induce premature expulsion of the fetus. On the other hand, quinin might prove useful to combat inadequate labor contractions. It seems to act directly on the muscles, as its action is not checked by atropin, while quinin checks the stimulation from epinephrin. Papaverin relaxes the uterus musculature. Morphin seems to exert a similar action on the uterus in its normal place, but on the surviving and perfused uterus it displays a stimulating action

85. **Wound Disinfectants.**—The findings after thirty and after sixty minutes and after twenty hours are given as the index for comparison. The deepest penetration recorded was with 5 per cent. hydrogen dioxid; next to this, 10 per cent. hydrogen dioxid; 10, 5 and 1 per cent. tincture of iodin; 1 and 2 per cent. mercuric chlorid; decinormal potassium iodid solution; alcohol; 5 per cent. phenol; 1 per cent. picric acid; 0.5 and 0.1 per cent. malachite and brilliant green, and balsam of Peru. Dakin's solution is low in the list.

86. **Improved Recording Instruments.**—Gohara gives five models of recording arms and points which register minute movements with greater precision than heretofore attained. In one, the tangential lever has an interposed spring coil to multiply the elasticity of the recording point. In another model the influence of gravity is utilized. By a further contrivance he is able to use several recording points at once. Each model is described in detail, with illustrations.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

May 11, 1918, **1**, No. 19

87 *Scabies. S. M. da Costa.—p. 1281.
88 *Spirochetes in Paretic Dementia. L. Bouman.—p. 1293.
89 History of Medicine in the Netherlands. F. M. G. de Feijfer. —p. 1297.
90 *Nervous Asthma and Psychoses. A. Q. v. B. Houckgeest.—p. 1298.

87. **Scabies.**—Da Costa concludes his study of scabies and its treatment by advocating sterilization of body and bed linen by immersing them in boiling water, woolen goods by ironing them with a hot flatiron. The bedsteads are wiped off with a cloth dipped in turpentine. If a sterilizing oven to disinfect the mattress, pillows, etc., is not available, he advises brushing and beating them out of doors and then shutting them up for a couple of weeks in an empty room or large box. Apart from the body, the parasites almost always die in about a week, presumably from lack of food.

88. **The Pale Spirochete in Paretic Dementia.**—Bouman was unable to find any spirochetes in his sections of brains from cases of paretic dementia until he reached his twentieth brain. Even in this brain there were only a few specimens of the spirochetes to be found. The search for them is facilitated by placing the preparations in a 1 per cent. solution of uranium nitrate for half an hour or an hour at 37 C.; the specimen is then soaked and rinsed in distilled water for a day and then in 96 per cent. alcohol for five days, then rinsed in distilled water until the sections sink, then continuing with the usual technic.

90. **Asthma and Psychoses.**—Houckgeest comments on the scanty literature on the connection between asthma and psychoses. Kelp has reported a case in which attacks of asthma alternated with a psychosis consisting of hallucinations, weakness of will and intelligence, followed by depression, distress and ideas of being poisoned. As the mental condition returned to normal, the asthma recurred. After this subsided, the man had no further trouble from this source. There had been preceding abuse of morphin and chloral in this case, and the psychosis may have been of toxic origin. Norman has also reported seven cases in which a tendency to asthma coexisted or alternated with periods of mental impairment. In only one of the seven the asthma persisted unmodified during the intercurrent psychosis, an acute melancholia. In a case personally observed by Houckgeest, the young man had had nervous asthma coming on after diphtheria as a child, and a psychosis developed about seven years ago. At present it is of the schizophrenia type. During the periods of the psychosis, the asthma seems to be mitigated but never subsides entirely. He has improved so much in the last year that he is now holding a lucrative position.

Upsala Läkareförenings Förhandlingar

1917, **22**, No. 5-6

91 Physiology of Sense of Smell. E. L. Backman.—p. 319.
92 Influence of Santonin on Vision. B. Jacobowsky.—p. 471.
93 Relations between Structure and Functioning of Nerve Elements. G. F. Göthlin.—p. 501.
94 Action of Electricity on the Ciliary Movements of the Ctenophores. G. F. Göthlin.—p. 522.